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THE INTERNATIONAL VETERINARY CONGRESSES

Their Origin and Intentions

"Pestilence", as was said by the late Sir George Newman, "has always been the opportunity of medicine." It has been the opportunity of veterinary medicine no less than of human medicine for attracting the attention of authority, however constituted, to its pressing needs for advancement. Thus it came about that during the 18th century, when there appeared in Europe terrible epizootics of cattle plague (rinderpest), usually in the wake of armies during military campaigns, ravaging the herds of the civilian population, and glanders spreading havoc among the cavalry and affecting the mobility of whole armies, rulers holding autocratic sway were moved to open up and support institutions devoted to veterinary education. In large part, the first veterinary school founded in Europe, at Lyons, in 1761, owed its origin to these circumstances, similar establishments soon following in other countries. While the horrors of these devastations were fresh in memory there was, as has been well said by Leclainche, commenting on the last outbreak of cattle plague in Western Europe, in 1920, no difficulty in surmounting obstacles, otherwise arising through vested and selfish interests, in obtaining the necessary resources for a proper veterinary education as well as for a well organised system of control over animal disease. As soon as those horrors disappeared, however, almost inevitably public memory again lapsed into a state of apathy.

In Britain, matters differed somewhat, in degree if not in essentials. For one thing, her large-scale military campaigns were conducted, not at home, but overseas. For another thing, unlike what could be done on the Continent, public opinion generally had to be aroused to the need of fostering enterprises of the sort necessary to embark on systematic veterinary education. As far back as 1658, the learned physician, Sir Thomas Browne, had urged the creation of an educated cadre comprising what he styled "Good Veterinarians" (incidentally, the first time the word veterinary was used in the language) to whom could be entrusted the study and control of the diseases periodically ravaging the herds and flocks of the countryside, for which no help was available except such as was then forthcoming from the "Common Farriers", characterised as this class was well known to be by its gross ignorance and cupidity.

It was not, however, until the rise of the Agricultural Societies, towards the close of the 18th century, that enlightened public opinion found organised means of expressing itself to achieve this end. And it was one of these, namely, the Odiham Agricultural Society of Hampshire, that first planned the creation of a veterinary school, in London, in 1791, for this purpose, proposing to send young men to Lyons, as had been done by other States, to start the new school. Indeed, as far back as 1714, a surgeon in high authority, Thomas Bates, when an outbreak of cattle plague had occurred near London, had clearly shown and described the measures required quickly to eradicate the disease.* But his precepts were soon forgotten, and with each succeeding visitation, time was wasted and enormous losses endured in seeking a "cure" rather than in applying rigorously the simple methods proved necessary for "prevention." Again it was to be that another great surgeon-naturalist, John Hunter (1728-1793), took up the movement initiated by the Odiham Society and planned the comprehensive course of study at the London School, extending over three years, to which was to be admitted young men of liberal education, who would be turned out well fitted to deal with these periodic national calamities.

Through a series of misfortunes arising in quick succession these plans miscarried. For one thing, the outbreak of the Napoleonic Wars, in 1793, made demands upon the newly opened institution to provide hurriedly a large number of recruits to replace the old-type Army Farriers in the care of the cavalry, the supervision of whose work had been previously often entrusted to the Army surgeons, of whom Hunter himself had been one. Thus, "the giant of the period", James Clark (1732-1808), "Farrier" to the King for Scotland, and "the father of Veterinary Hygiene, not only in this country but in Europe," (Smith), who had been invited by the Odiham Society to open for them the school in London but declined on the ground that he was already planning to open one in Edinburgh, found, with the change in the political situation after the outbreak of those wars that he was unable to do so, and the London school by then, perniciously for posterity, had already fallen into most unworthy hands. To distinguish the partially trained recruits from the London School from the Farriers on the one hand and the Surgeons on the other, they were given the designation "Veterinary Surgeons", quite erroneously, and it was this designation that was afterwards destined to obtain legal sanction when it was employed in our 1844 Charter to distinguish from all others the practitioners in the "art and science" of our craft.

It has been well said that if those wars had been delayed two more years the whole course of veterinary development

[*Fleming (*Animal Plagues*, 1871, Vol. 1, p.223) writes of this experience: ". . . Paulet (*Recherches sur les Maladies Epizoötiques*, 1775) with great truth and common sense, observes of this emergency—'The English are, therefore, as one sees, among European peoples the first to provide an example of such conduct; and in fact when the incurability of a disease of this kind has been well established by means of multiple experiments, it is a loss of precious time to seek other means to arrest its course. Beyond the political reasons which caused the English Government to decide upon this line of action as the most prompt and surest way, there were others likely enough to influence its choice: on the one hand, the physical certainty that the germs of the disease had been introduced from infected countries; and, on the other hand, the example of unsuccessful results forthcoming from the various methods tried in practice by other European peoples. The experience has thus taught that the wholesale slaughter of infected animals, in certain cases, is the sole means to cause the spread of disease to come entirely to an end.' . . ." Unfortunately, subsequent history proved that the English did not always live up to this enviable reputation.]

in this country would have been entirely different. For among the dozen or so first admitted as students to the London college there were men of outstanding ability and character such as were most rare within the profession throughout the following century.

Then, for another thing, for some reason that is not clearly understood, this country escaped the ravages of the major epizootics for a long period from the above date when the London school was opened until the 19th century was well advanced. True, in the fourth decade, two new epizootics made their appearance for the first time in the country, namely contagious bovine pleuro-pneumonia and foot-and-mouth-disease. But it was not till 1865 that the great scourge, cattle plague, made its appearance again. Then everything had to be learned afresh, so entirely unprepared was this country, contrary to France, where it also appeared, to meet the calamity with appropriate measures.

Meanwhile, between the founding of the London School in 1761 and the reappearance of cattle plague in 1865, such a complete transition had taken place in our whole social and economic fabric as had never occurred in history previously, with consequent repercussions on the development of the veterinary profession. England, from being a sparsely populated wool and wheat exporting country now needed food to sustain the rapidly increasing populations of the new towns in the industrial areas. Road communications which had been allowed to become derelict since the Roman occupation were opened up between the towns and inside them, and the horse, despite the innovation of rail transport which was soon to come, was imperatively needed both for commercial and industrial purposes and as the symbol of comfort and social standing among the rising middle classes, all to an extent that had never before been known in history. Above all, therefore, the veterinary surgeon was a trusty adviser in all that concerned the horse, and the eminently successful in private practice scorned devoting attention to any less noble creatures.

Through the accident, in 1792, of the appointment of a young surgeon (Edward Coleman, 1765-1839) to the charge of the London School, wholly unfitted by training and inclination to envisage the prospects opening out in the broad sense before the new profession he had been called upon to nurture to its feet, the course was shortened, first to provide the Army recruits, from three years to three months. This appointment, made after the tragic death of the Frenchman, St. Bel, from glanders, within little more than a year after the opening of the school, had, as is now well known, a terrible and lasting effect on the destinies of the rising profession. For he taught that the diseases of the horse were " few and easily learned ", and the " sons of grooms and farriers ", rather than educated men of his own class, made the best veterinary surgeons, and no other animal was worthy of real notice but the horse. Doubtless, while he himself occupied the position for long of head of the new Army service, the saving of animal life which he accomplished in Army stables by the introduction of better systems of sanitation and ventilation brought him great prestige in the eyes of authority, and backed powerfully by some eminent rising surgeons who remained his friends, progress at the veterinary school was thwarted for many long years. Good man though he was, the founder of veterinary teaching in Scotland, in 1824 William Dick (1793-1866) likewise had no conception whatever of prevention in disease control, though as a clinician, in horse matters, he was superb, and his school at Edinburgh, contrary to the London school, was destined to supply excellent men to open up veterinary institutions wherever British influence prevailed.

Meanwhile, on the Continent, the veterinary schools, handsomely endowed as they were from State funds, were producing a brilliant constellation of veterinary teachers and research workers, who were succeeding in redeeming the veterinary art from the state of abject empiricism into which it had fallen since the Byzantine period during the early centuries of the Christian era. The impressive literature which was being amassed at those schools provided for the most part, in truth, what content in real knowledge there was that was being imparted in the teaching at the British schools.

As we can now better realise, no machinery existed within the British Constitution to finance similar enterprises until the novel expedient was created in 1910 of the Development Fund; and full recognition of State responsibility for veterinary education did not materialise until the passing of the Veterinary Surgeons' Act, 1948.

Conforming also with the British tradition, according to which State action has nearly always followed upon urgent expression of demands by organised public opinion, and not anticipated it, as often elsewhere, several reformers, whose great merits can better be discerned by their posterity, arose during the above long period of constricted and distorted veterinary development. Three of these reformers were men of really outstanding merit.

First, William Youatt (1776-1847). Mainly through the brilliant journalism which he conducted in *The Veterinarian*, founded in 1828, advocated redemption of the calling in several ways, one of the chief being his insistence on the needs of teaching upon the diseases of animals other than the horse at the veterinary schools and on the paramount need of effecting a closer liaison with agriculture. He was thus a leading spirit in the founding of the central body, the *English Agricultural Society*, in 1838, which became incorporated as the Royal Agricultural Society of England in 1840. Moved by the dislocation to cattle breeding caused by the appearance of contagious bovine pleuropneumonia and foot-and-mouth disease in this country, this powerful society supplied funds for the introduction of teaching upon " Cattle Pathology " at the London School. Most unfortunately, the man appointed (J. Beart Simonds, 1810-1904) was not of the calibre demanded and the listless teaching in this subject proved later such a disappointment to this great society that its grant was withdrawn. It was not until the appointment of John M'Fadyean, in 1892, to teach pathology at the school that the society was at last, and for long, worthily served.

Secondly, Thomas Walton Mayer (1814-1887), the descendant of a line of veterinary reformers and society founders, ultimately, with messianic zeal, stirred the graduates from the schools into a sense of unity to obtain release from the shackles with which Coleman and his friends had fettered the rising profession. Hence, he was the leading spirit in the movement which obtained for us the Charter of Incorporation of 1844—" the Magna Carta of all professional institutions ". The profession had to wait for the appearance of another ardent reformer, George Fleming (1833-1901) before that " first step " was made really effective in law, with the passing of the Veterinary Surgeons' Act, 1881.

Thirdly, John Gamgee (1831-1894), the greatest genius the British veterinary profession has ever produced, perceived clearly and prophetically the great dangers which this country was running through utter lack of any sort of organised State system for the control of the major epizootics.

The son of a wise, most able, and successful veterinarian, Joseph Gamgee (1801-1895), who had practised abroad in Italy and had come to appreciate by long residence there the nefarious influence the Coleman regime and its unworthy successors had had upon veterinary progress in this country, this young man had had a cultured veterinary training in every respect which had rendered him conversant with all important veterinary developments and personalities on the Continent, as none else in England were at that time. He foresaw clearly that with the free importation of live cattle from the Continent to feed the urban areas, cattle plague was certain to be introduced unless timely steps were taken to prohibit it. Having joined Dick at Edinburgh in 1858, he soon sensed that the mind of this good man was wholly unattuned to apprehend any such dangers, and so founded a short-lived veterinary school of his own in that same city, one of his most brilliant students and later a colleague being William Hunting (1843-1913), destined afterwards to play a leading part in the total eradication of glanders from this country. John Gamgee's advocacy and industry were

The Late Professor John Gamgee
(Founder of the First International Veterinary Congress)

unflagging and intense; but the supineness of the profession during that bad phase in our history was unshakeable. The pages of the *Edinburgh Veterinary Review* remain testimony to his great learning and facility in expression. Then, in March, 1863, he announced in all the Continental veterinary periodicals and wrote direct to all the leading teachers and organisers in Europe concerning his intention to summon an International Veterinary Congress, to be held at Hamburg, in the following July. In this venture, he was ably supported by the eminent veterinary authority, Professor Hering, of Stuttgart. The Congress was duly held, 99 members attending, and discussion centred chiefly around measures to circumvent cattle plague, a most useful compendium† of information from men highly experienced in dealing with this disease and other major epizootic diseases then prevailing in Europe being thus forthcoming. Cattle plague, exactly as predicted by Gamgee, was brought into England, then, in 1865, with a shipment of cattle into Hull from the infected Baltic provinces. The ravages which ensued were enormous. For until Gamgee's warnings were at long last hearkened to by authority and the necessary steps taken to "stamp out" the disease, the country became involved in a money loss alone amounting to over £5 million sterling in the actual currency of the period. Fortunately the state of prosperity in the country at the time was such that it was well able to withstand the losses. The cattle plague legislation, eventually passed in 1869, forms the essential basis of all our present system of control over animal disease; and no more need we dread the ravages of cattle plague in this country.

The history of succeeding Congresses has been well summarised by Leclainche (*Histoire de la Médecine Vétérinaire*, 1936. 735) and so need not be repeated here. The first Congress to be held on British soil, in 1914, was dramatically closed after its formal opening by the outbreak of the First World War on August 4th.‡ The resumed Congress, in 1930, was an outstanding success, presided over as it was by the towering figure of international repute, the late Sir John M'Fadyean, who at the banquet declared the occasion to be "the greatest moment of his life!" He was supported by other great figures in our annals, such as Leclainche, Von Hutyra, Von Ostertag, Mohler, Vallée, etc. Now, most of these great names have vanished from the scenes of their labours. So, another Congress is to be held this coming August in London again after another world war.

The programme of the Congress, in the diversity of the subjects chosen for discussion and the array of opening contributors, illustrates the enormous changes that have taken place in the scope and nature of the problems grappled in earnest now by "Good Veterinarians" in the public interest. No less does the financial support, at last given officially by the British State to the present Congress, testify to its change of mood regarding the services these same men can render in ensuring the well-being, and hence the political stability, of peoples throughout the world.

We may now well ask ourselves whether with all this State support at last forthcoming, after the long labours and untold sacrifices of the great reformers and pioneers, and so much clamouring for that support, we are their worthy successors? Or, does that State nurture inevitably bring in its train a drooping of spirits, with loss of pioneering ardour; and, maybe, cause selfish and sectional interests, as often before, to prevail? The measure of the response to the invitations sent out to the profession to attend this coming Congress will assuredly provide in this respect the complete answer.

The growth of veterinary medicine in Britain, despite all the serious handicaps it has suffered to arrest its development, has had much that is noble and native to it to contribute towards progress in the rest of the world. At its best, it has been genial and unassuming, and, above all, practical.

So, we may be sure that as in 1930 the visitors and delegates to these shores from countries within the Common-

† *Amtlicher Bericht über die internationale thierärztliche Versammlung zu Hamburg am 14-18. Juli* 1863. Von den ersten Präsidenten Dr. Ed. Hering und den Secretär W. Probstmayr, 1864. Stuttgart: Ebner and Seubert. See also. Gamgee, J. (1866.) *The Cattle Plague*, Part 3, London: Robert Hardwicke.

‡ Again, if the outbreak of that War had been postponed another week, the more recent history of the profession in Britain would probably have been entirely different. M'Fadyean had doubtless planned in his mind to retire from the headship of the London College after reaching the summit of his ambitions, which was to preside over an International Veterinary Congress; and in all likelihood he would have been followed at the College by his chief disciple and natural successor, Stewart Stockman, thus perpetuating the best in the tradition he had built up there during his prime.

(Concluded at foot of next page.)

FURTHER STUDIES ON TUBERCULIN SENSITIVITY IN THE BOVINE

By

W. R. KERR, H. G. LAMONT, and J. L. McGIRR

I. The Stormont Test

In 1946 we published a paper in which a new method of tuberculin testing was described (Kerr, Lamont and McGirr, 1946). This new technique—designated the Stormont Test—was based on observations indicating that, in the tuberculous bovine, an intradermal tuberculin injection site exhibited increased sensitivity to a second tuberculin injection given seven days after the primary inoculation. Results derived from an experiment involving 300 animals were then reported. Additional investigations have now been carried out and altogether 600 animals have been subjected to the new testing procedure and to subsequent slaughter for thorough *post-mortem* examination. This paper presents (in summarised form) the results obtained.

Experimental Animals and Procedure

Practically all of the cattle used were animals of unknown origin and history passing through Belfast abattoir. A few were animals passing through Ballymena abattoir and the remainder were discards from attested herds.

The Stormont technique has already been described in detail (Kerr, Lamont and McGirr, 1946). The only modification which has been adopted is one which does not apply to the present series of animals; it is that in self-contained attested herds an increase in skin measurement of up to 6 mm. is permitted.

Though not necessary for diagnostic purposes, and not part of the Stormont test technique, all the animals were also tested with avian P.P.D. (0.4 mg./ml.). The avian readings provided figures which allowed us to compare test interpretations based on the Single Intradermal (S.I.), the Single Intradermal Comparative (S.I.C.), and the Stormont methods. The Stormont test is carried out as follows:—(D day) 0.1 ml. of mamm. P.P.D. (1.5 mg./ml.) is injected intradermally in the neck. One week later (D day +7) the skin thickness of this area is measured and a further 0.1 ml. of mamm. P.P.D. is injected. The site is measured after a lapse of 24 hours (D day + 8). The diagnostic measurement is the increase in thickness between the D + 7 day and the D + 8 day measurement.

At this point it might be mentioned that we have investigated the effect of using tuberculin strengths varying from 0.1 mg./ml. to 3.0 mg./ml. and of altering the time interval between the first and the second injections. Our findings all indicated that, according to the standards laid down, the original procedure (using mamm. P.P.D. at a strength of 1.5 mg./ml. and a time interval of seven days between the injections) gave the best results.

Tables I-IV, present the salient features of our test findings. Table I gives the essential test results while Tables II-IV indicate the error distribution among individual animals in the three tests. The total *error with the Single Intradermal Test* was 11.2 per cent.; of this number, 4.5 per cent. represented infected animals which were not detected. For the *Single Intradermal Comparative Test* the comparable figures were 10.2 and 6.0 per cent. and for the *Stormont Test* 3.3 and 2.0 per cent. Six infected animals failed to react to all three tests and four non-infected animals gave positive reactions in all tests. Of the remaining ten Stormont test errors six were infected animals which failed to react to the second injection while four were non-infected animals which gave positive reactions.

Discussion

On the whole these results suggest that, in animals of unknown origin and history—as the animals here involved were—the Stormont test is considerably more accurate than are either of the other two procedures. They also indicate that, in such animals, the Single Intradermal Comparative Test is more liable to fail to detect infected animals (six per cent.) than is the Single Intradermal procedure (4.5 per cent.). However, it should be noted that the Single Intradermal Comparative Test was, and is, primarily designed for use in animals of known history and origin and that it was never intended (or held) to be accurate in the case of unknown animals.

We consider that the Stormont test, in view of its relative success in the unknown animal, is likely to prove the test of choice in the initial phases of any area eradication scheme. An important point in its favour is the fact that this test appears to be capable of detecting the infected newly-calved cow; our own earlier work and that of Mr. J. S. Ogg, F.R.C.V.S. (who has investigated 50 such animals), indicates that as many as 50 per cent. of such animals may be missed by the Single Intradermal Comparative Procedures.

Unfortunately, skin tuberculosis (so-called) still remains a problem, and the Stormont technique is no better, though no worse, than any of the other procedures when dealing with this disease.

The Stormont procedure is now recognised as the official test in Northern Ireland and Mr. J. S. Ogg, F.R.C.V.S., supplied us with the following comment on it.

"Some two years ago, following the publication by Kerr, Lamont and McGirr of the details of the Stormont tuberculin test, the Northern Ireland Ministry of Agriculture instituted a series of controlled experiments utilising the new technique. Prior to this the Single Intradermal and the Single Intradermal Comparative Tests were the only procedures used.

"At first the Stormont test trials were carried out in 'new herds' where the absence of herd history rendered the interpretation of existing test procedures a difficult and unwelcome task. The success attendant upon these trials, where existing procedures were used as controls and *post-mortem* examinations were frequently carried out, was such as to justify a more widespread use of the Stormont test. The new technique was found to be efficient in many diverse

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wealth and from all other countries overseas will receive a most hearty welcome to this coming Congress.

Let us, therefore, not fail; and, by our own exertions from now onwards, let us prove again to the world that a profession which has produced a Youatt, a Mayer, a Gamgee, a Fleming, a Hunting, a M'Fadyean, and many more of the kind, is still fired with the same zeal and spirit of enterprise; and, beyond all else, with those same gifts of voluntary association for the common good in which we here in this island have in the past long led the whole world.

J. T. E.

TABLE I

ANALYSIS OF TUBERCULIN TEST RESULTS, 1945–48. 600 ANIMALS

Type test used	Test results	Autopsy		Infected animals not detected		Non-infected animals wrongly condemned		Total error
		— VE	+ VE	Number	Per cent.	Number	Per cent.	Per cent.
S.I.D.	365 —	338 —	27 +	27	4·5	40	6·7	11·2
	49 +	21 —	28 +					
	186 +	40 —	146 +					
S.I.D. comparative	389 —	353 —	36 +	36	6·0	25	4·2	10·2
	49 —	21 —	28 +					
	162 +	25 —	137 +					
Stormont	403 —	391 —	12 +	12	2·0	8	1·3	3·3
	197 +	8 —	189 +					

N.B. The Stormont test results exclude the doubtful reactors recorded in the other two tests.

TABLE II

ANALYSIS OF ERRORS IN THE SINGLE INTRADERMAL TEST 67

S.I.D. test results	S.I.D. comp. test results	Stormont test results	Autopsy
4 +	4 +	4 +	4 —
6 —	6 —	6 —	6 +
15 +	15 —	15 —	15 —
21 +	21 +	21 —	21 —
21 —	21 —	21 +	21 +

TABLE III

ANALYSIS OF ERRORS IN THE SINGLE INTRADERMAL COMPARATIVE TEST 61

S.I.D. test results	S.I.D. comp. test results	Stormont test results	Autopsy
4 +	4 +	4 +	4 —
6 —	6 —	6 —	6 +
21 +	21 +	21 —	21 —
21 —	21 —	21 +	21 +
9 +	9 —	9 +	9 +

TABLE IV

ANALYSIS OF ERRORS IN THE STORMONT TEST = 20

S.I.D. test results	S.I.D. comp. test results	Stormont test results	Autopsy
4 +	4 +	4 +	4 —
6 —	6 —	6 —	6 +
6 +	6 +	6 —	6 +
4 —	4 —	4 +	4 —

circumstances and situations and, more than a year ago, the decision was made to adopt it for all official tuberculin tests, to the exclusion of all other existing procedures.

" Since that time, upwards of 10,000 animals have been tested by the Stormont method and results have fully justified its adoption. Two minor modifications of the original technique have been incorporated in the official test.

" In the paper by Kerr, *et al.*, the procedure adopted involved the use of both mammalian and avian tuberculins although the results indicated that the avian figures were not required for interpretation. In the test as officially adopted only mammalian tuberculin (1.5 mg./ml.) is used. The second modification relates to interpretation and involves the introduction of a doubtful category embracing increases in skin thickness of from 4-6 mm. (inclusive). This ' refinement ' of interpretation is confined to self-contained herds whose previous history was consistent with the absence of bovine tuberculosis. The necessity for this step had arisen mainly as a result of the incidence in such herds of so-called skin tuberculosis. This condition constitutes the greatest problem confronting tuberculin testing to-day and the Stormont test *per se* does not provide any solution. However, preliminary experiments using a *bovine P.P.D. tuberculin* (0.5 mg./ml.) together with the Stormont technique suggest that such a procedure may offer a degree of progress in the right direction."

We consider that organisms of avian type are closely associated with, at least, the majority of cases of skin tuberculosis (see Ogg, 1948) and results recently published by Paterson (1948) lend some support to the thesis that bovine P.P.D. may prove less troublesome than official mammalian (human) in cases of skin tuberculosis. Paterson found that bovine P.P.D. was considerably less active than was human in eliciting reactions in avian-sensitised guinea-pigs.

Investigations are proceeding at the moment into the desensitising effects of the Stormont Test and will be the subject of a further communication.

II. Leucocyte Changes in Relation to Intradermal Tuberculin Testing

The white blood cell changes which occur as the result of the injection of tuberculin into the tuberculous bovine have been studied in the U.S.A. (*e.g.*, Hendershott & Johnston, 1941) and in Great Britain (*e.g.*, Paterson, Martin & Young, 1944, and Arthur, 1946, 1947). The reaction produced in the infected animal consists of a marked rise in the polymorphonuclear count relative to that of the lymphocytes. We have been studying W.B.C. changes in relation to immune reactions in general (in collaboration with Dr. Muriel Robertson, of the Lister Institute, London) and took the opportunity of investigating this phenomenon in 41 animals subjected to our Stormont testing procedure.

Experimental Animals and Procedure

The animals used were once again cattle of unknown history passing through Belfast abattoir. Each animal was subjected to Single Intradermal and Stormont Test procedures and concurrently with these temperature reactions,

total white blood cell (W.B.C.) and differential counts were studied. Only mamm. P.P.D. (1.5 mg./ml.) was used: blood samples for counts were taken at varying intervals after injections (*e.g.*, ½, 1, 2, 4, 6 and 12 hours) on each of the days on which tuberculin injections were given and twice on each of the days following injection. Other blood samples were taken at varying times over the whole test period of ten days. The total W.B.C. counts were made on citrated blood in the Thoma Zeiss Haemocytometer or in the Neubauer counting chamber. The differential counts were made on blood films, made directly from the animal and films were stained by Giemsa's method.

Results

Paper restrictions and consequent shortage of space preclude the presentaion of the results in full, but Tables V and VI present an analysis of the major features of our findings while Graphs I and II indicate the general trends of the blood counts in the tuberculosis-positive and the tuberculosis-negative animal. Our interpretation of a positive blood reaction is one in which the lymphocyte polymorphonuclear ratio is less than unity (in general the normal ratio is quite considerably more than one).

Table V

Analysis of Test Results
41 Animals, including 4 Cases of Skin Tuberculosis
Single Intradermal Test

Test results	Autopsy: Positive	Autopsy: Negative
17 —	4 +	13 —
18 +	17 +	1 —
2 ±	1 +	1 —
4 +	Skin tuberculosis	

Stormont Test

Test results	Autopsy: Positive	Autopsy: Negative
16 —	1 +	15 —
21 +	21 +	0 —
3 +	Skin tuberculosis	
1 —	Skin tuberculosis	

Single Intradermal Blood Reaction

Test results	Autopsy: Positive	Autopsy: Negative
21 —	8 +	13 —
16 +	14 +	2 —
3 —	Skin tuberculosis	
1 +	Skin tuberculosis	

Stormont Test Blood Reaction

Test results	Autopsy: Positive	Autopsy: Negative
16 —	1 +	15 —
21 +	21 +	0 —
3 —	Skin tuberculosis	
1 +	Skin tuberculosis	

Table VI

Analysis of Test Results
41 Animals, including 4 Cases of Skin T.B.
Test Results in Agreement with Autopsy Findings

Skin reaction to: S.I. test	Skin reaction to: Stormont test	Blood reaction to: S.I. injection	Blood reaction to: Stormont (2nd) inj.	Autopsy
11 —	11 —	11 —	11 —	11 —
10 +	10 +	10 +	10 +	10 +

Errors in Single Intradermal Test. 5 + 4

Skin reaction to: S.I. test	Skin reaction to: Stormont test	Blood reaction to: S.I. injection	Blood reaction to: Stormont (2nd) inj.	Autopsy
3 —	3 +	3 +	3 +	3 +
1 +	1 —	1 —	1 —	1 —
1 —	1 —	1 +	1 +	1 +
1 +	1 —	1 —	1 —	1 skin T.B.
1 +	1 +	1 +	1 +	1 skin T.B.
2 +	2 +	2 —	2 —	2 skin T.B.

Errors in Stormont Test. 1 + 3

Skin reaction to: S.I. test	Skin reaction to: Stormont test	Blood reaction to: S.I. injection	Blood reaction to: Stormont (2nd) inj.	Autopsy
1 —	1 —	1 +	1 +	1 +
2 +	2 +	2 —	2 —	2 skin T.B.
1 +	1 +	1 +	1 +	1 skin T.B.

Errors in Single Intradermal Blood Reaction. 10 + 1

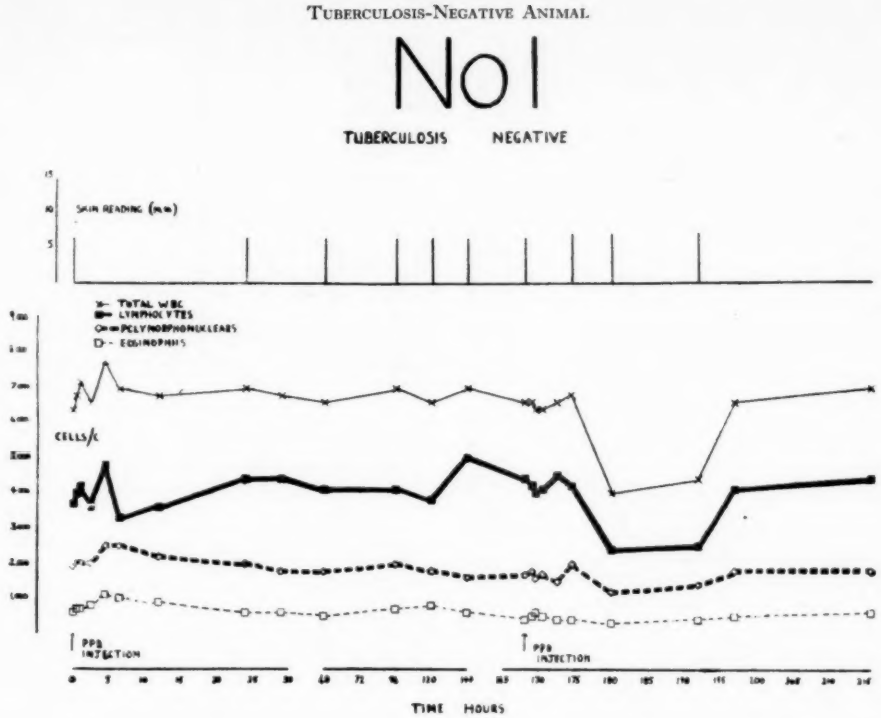
Skin reaction to: S.I. test	Skin reaction to: Stormont test	Blood reaction to: S.I. injection	Blood reaction to: Stormont (2nd) inj.	Autopsy
7 +	7 +	7 —	7 +	7 +
2 —	2 —	2 +	2 —	2 —
1 +	1 +	1 —	1 —	1 +
1 +	1 +	1 +	1 +	1 skin T.B.

Errors in Stormont Blood Reaction. 1 + 1

Skin reaction to: S.I. test	Skin reaction to: Stormont test	Blood reaction to: S.I. injection	Blood reaction to: Stormont (2nd) inj.	Autopsy
1 +	1 +	1 —	1 —	1 +
1 +	1 +	1 +	1 +	1 skin T.B.

As will be seen from Table V, the Single Intradermal Test failed to detect four infected animals and condemned one which showed no evidence of tuberculosis. In addition, all four cases of skin tuberculosis were returned as positive by the test interpretation. Accordingly the *total S.I.D. error* is 13.5 per cent. excluding the skin-tuberculosis cases or 22.0 per cent. including them. With the Stormont test one infected animal failed to react and three of the four skin-tuberculosis animals gave positive reactions. *The Stormont test error* is, therefore, 2.7 per cent. excluding the skin-tuberculosis cases or 9.8 per cent. including them. So far as the blood reaction to the S.I.D. injection is concerned, eight animals failed to show a reaction while two non-infected animals gave positive findings. Only one of the skin-tuberculosis animals gave a positive blood reaction.

GRAPH I
TUBERCULOSIS-NEGATIVE ANIMAL



Hence the *S.I.D. Blood Reaction error* is 27.0 per cent. excluding the skin-tuberculosis cases or 26.8 per cent. including them. One infected animal failed to give a blood reaction to the Stormont (2nd) injection and one of the skin-tuberculosis cases gave a positive reaction. *The Stormont Test Blood Reaction error* is, therefore, 2.7 per cent. excluding the skin-tuberculosis cases and 4.9 per cent. including them.

Table VI gives an analysis of the results according to the errors in each test. Eleven non-infected animals (*i.e.*, 73.3 per cent. of the tuberculosis-free animals excluding skin tuberculosis cases or 57.9 per cent. including them), were negative to all tests while ten infected animals (*i.e.*, 45.5 per cent. of all tuberculous animals) were positive to all tests.

The errors in the S.I.D. test consisted of three infected animals which were positive to the other tests and failed to react, one non-infected animal which was negative to the other tests and gave a positive reaction and one infected animal which failed to react to both the S.I.D. and Stormont tests though giving positive blood reactions in both cases. The infected animal which failed to react to the Stormont test also failed to react to the S.I.D. test but it gave positive blood reactions in each case. Seven infected animals failed to give positive reactions to the S.I.D. blood test though they reacted to all the other tests while two non-infected animals were positive to the S.I.D. blood test and negative to all the others. One infected animal failed to react to either of the blood tests though it was positive to each of the skin tests. So far as the skin tuberculosis cases were concerned, one was positive to all four tests, two were positive to each of the skin tests though giving negative blood reactions, and one was negative to all the tests except the S.I.D.

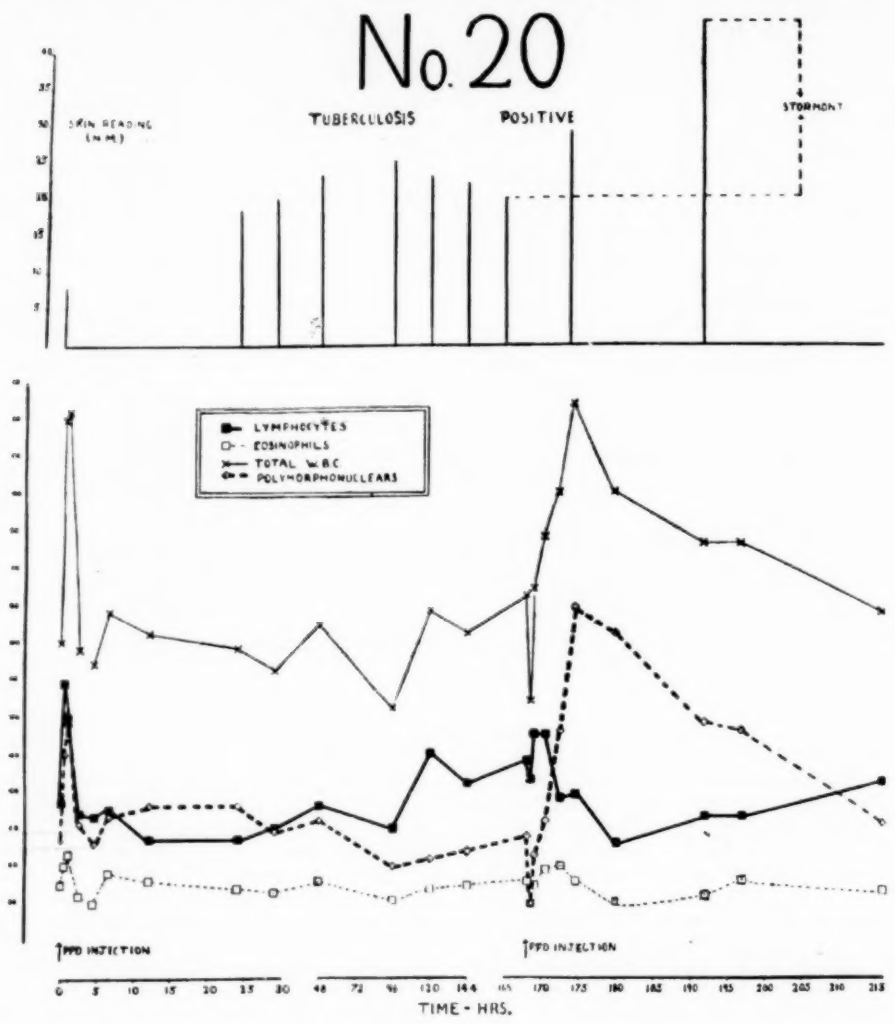
The graphs indicate the W.B.C. changes in the non-infected and infected animal. It should be noted that in the normal animal (Graph I) the absolute number of cells varies but that the relative proportion of the different cell types remains fairly constant. [One point which might be stressed here is that animals which are to be used for multiple bleeding and differential counts should be quiet and easily handled; excitement raises the relative (and absolute) polymorphonuclear count very considerably.] In the infected animal, on the other hand, the ratio of lymphocytes to polymorphonuclears alters very considerably, our interpretation being that a positive reaction occurs when that ratio falls below unity (Graph II). It will be noted that in the graph, the blood reaction to Stormont injection is much more marked than is that to the primary (S.I.D.) injection. This finding is relatively constant and, we think, may be of marked significance. This point will receive considerable attention in the discussion which follows. Our results indicate that, unfortunately, the maximum alteration of the lymphocyte polymorph ratio occurs at a variable period of time (six to 24 hours) after the tuberculin injection, a fact which necessitates multiple bleeding over the 24-hour period following injection. (All of our animals were bled for up to 48 hours after the Stormont (2nd) injection). Another point worthy of mention is that the degree of the blood reaction does not appear to bear any direct relationship to the extent of the skin reaction.

Discussion

Perhaps the most striking finding of the tests recorded above is the fact that the intradermal injection of such a relatively small dose of tuberculin (each injection 0.15 mg.)

GRAPH II

TUBERCULOSIS-INFECTED ANIMAL



produced a definite and marked reaction in the W.B.C. picture of infected animals. The temperature reaction produced was in no case marked and appeared to be of little or no diagnostic value. As the results show, the W.B.C. reaction to the primary (S.I.D.) injection is not a particularly reliable guide for the diagnosis of infection. On the other hand, the marked reaction which occurs in the infected animal following the Stormont (2nd) injection appears to be diagnostically significant, and, even in the skin tuberculosis cases, this reaction gave the most reliable results. We are inclined to take the diagnostic reliability and the larger W.B.C. changes of the Stormont test blood reaction as presumptive evidence of the greater efficiency of the Stormont procedure as compared with that depending on single injection tests.

The degree of the blood reaction produced as a result of the Stormont procedure and some field results following re-testing at an interval of two months in herds affected with skin tuberculosis (supplied to us by Mr. J. S. Ogg, F.R.C.V.S.) in conjunction with some of our experimental results in relation to general sensitivity and W.B.C. changes (Kerr, McGirr and Robertson, 1948) suggest the possibility that, in certain cases, desensitisation following the use of the Stormont test may be of relatively long duration. Our general results and those in the field indicate that the duration of "testing desensitisation" is certainly less than six months, but we have not investigated this problem intensively. Although not comparable with tuberculosis our results in experiments dealing with anaphylactoid type reactions and sensitivities (Kerr, McGirr and Robertson, 1948) indicate that marked and even absolute desensitisation follows the production of marked W.B.C. changes—particularly those in which the absolute number of lymphocytes drops sharply. This question requires investigation in relation to the Stormont test. It is mentioned here merely as an indication that such a state of affairs may occur and that, where a marked alteration of the polymorph lymphocyte ratio has occurred, the question of the period which must elapse before a satisfactory re-test can take place is worthy of some consideration. In practice, the question is likely to occur only in herds showing evidence of skin-tuberculosis.

So far as skin-tuberculosis is concerned the efficacy of the blood reaction to the Stormont (2nd) injection must be left open. In the series of results recorded here one out of four cases of skin tuberculosis gave a positive blood reaction and until a much larger number of animals has been tested no prognostication can be made. Using a single injection Arthur's results (1947) suggested that the blood reaction could not be used as a means of differentiating between skin-tuberculosis (so-called) and true bovine infection.

The fact that diagnostic blood results can be obtained by the Stormont technique only after multiple bleedings renders such a procedure unsuitable for general testing purposes. However, the test might prove useful in particular cases in which intradermal test results are in dispute. In any case, such findings may prove interesting in relation to the elucidation of problems relating to the biological mechanisms underlying the phenomena of infection and immunity.

III. Passive Transference of Tuberculin Sensitivity from Bovine to Guinea-pig by Means of White Blood Cells

The possibility of the passive transference of tuberculin sensitivity by means of blood has been the subject of much study and review (*e.g.*, Rich, 1944) but until recently no conclusive evidence either way had been published. Modern work on the relationship of white blood cells, in particular lymphocytes, to immune phenomena (White & Dougherty, 1946) and some of our findings (Kerr, McGirr and Robertson, 1948) indicated that the possibility of transference by lymphocytes was worthy of trial. This work was actually in progress when several recent American publications came to our notice, *e.g.*, Chase (1945), Kirchheimer and Weiser (1947), Cummings, Hoyt and Gottshall (1947), and Stravitsky (1948). These papers recorded the passive transference of tuberculin sensitivity from the sensitised guinea-pig to the normal guinea-pig by means of such tissues as peritoneal exudate, spleen, lymph nodes, and washed white blood cells.

Experimental Animals and Procedure

Blood from 14 tuberculous bovines was used. Twelve of the animals were positive reactors to our abattoir tests (tuberculosis being confirmed as present at *post-mortem* examination) while two were calves—one showing extensive tuberculosis of congenital type and the other a tuberculous meningitis with eye lesions. Approximately one litre of citrated blood was obtained from the jugular vein of each animal. White blood cells were obtained by centrifugating in 15 ml. tubes and were washed clear of red cells in 0.25 per cent. gelatin saline. The packed W.B.C.s were then injected intramuscularly or intraperitoneally into tuberculin-negative guinea-pigs: the dose was approximately 2 ml. for each guinea-pig. Tuberculin tests, using mamm. P.P.D. (1.5 mg./ml.) diluted one in nine with saline, were carried out at intervals varying between one and seven days after the W.B.C. inoculation.

Results

Table VII gives the results of the guinea-pig tuberculin tests. The degree of sensitivity, as indicated by the diameter of the reaction areas 24 hours after the injection of 0.2 ml. diluted P.P.D. (0.15 mg./ml.), is indicated by plus signs: +++ = 16 mm.; ++ = 12 mm.; and + = 8 mm.; o = less than 6 mm.; – = not tested.

The table below indicates that with four of the 14 blood samples used, positive evidence of sensitivity transference was obtained. In a further four, the reactions were in the doubtful category, while six showed no evidence of transference. The sensitivity appeared to be of short duration and though the number of samples tested was small, our findings tend to support the American results in showing that passive tuberculin reactivity is at a maximum three to five days after W.B.C. inoculation.

Discussion

The above results, though derived from a limited number of blood samples, show definite evidence of the passive transference of tuberculin-type sensitivity with 28.6 per cent. of the W.B.C.s tested. The American workers (*e.g.*, Chase, 1945, and Kirchheimer & Weiser, 1947) enjoyed a greater measure of success, but it must be remembered that they were using material derived from highly sensitised guinea-pigs, while our W.B.C.s were taken from field cases of bovine tuberculosis. It is again worthy of mention that the success or otherwise of sensitivity transference was in no way related to the degree of skin sensitivity exhibited by the animals from which the blood samples were taken.

The importance of results such as those here recorded lies in the fact that they afford fairly concrete proof of the presence of sensitising antibody in the tuberculous animal and that, at the same time, they indicate that W.B.C.s are very directly implicated in the production of sensitivity phenomena.

Table VII

Tuberculin Tests on W.B.C. Sensitised Guinea-Pigs

Designation of bovine blood inoculated	Degree of reaction at the understated intervals following W.B.C. inoculation						
	1 Day	2 Days	3 Days	4 Days	5 Days	6 Days	7 Days
Cow I	+	—	+++	—	++	—	—
„ II	—	++	—	+++	—	++	—
„ III	—	++	—	+++	—	—	++
„ IV	—	—	++	—	+++	—	+
„ V	—	+	—	+	—	+	—
„ VI	—	—	+	+	—	—	—
„ VII	—	+	—	+	—	—	—
„ VIII	—	—	+	—	+	—	—
„ IX	—	o	—	±	—	o	—
„ X	—	—	o	—	o	—	o
„ XI	o	—	o	—	o	—	—
„ XII	—	—	o	—	o	—	—
Calf XIII	—	o	—	o	—	o	—
„ XIV	—	—	o	—	o	—	—

IV. White Blood Cell Changes and Desensitisation

It is of considerable interest to compare the changes in the overall picture of the white blood corpuscles which occur (a) as a result of Intradermal Tuberculin Testing, (b) at parturition, (c) following the injection of adrenal cortical hormone preparations, (d) following the injection of sphingomyelin—one of the nitrogen-containing fatty substances extractable from the brain, and (e) as a result of the intravenous, intramuscular, or intrauterine injection of a massive dose of antigen in the sensitised animal leading to a reaction of the anaphylactoid type. Dr. M. Robertson, of the Lister Institute, London, has been very directly implicated in all of this work and a paper now in press (Kerr, McGirr and Robertson, 1948) describes much of it in detail and provides information regarding the experimental work. We are here merely presenting those results which afford an interesting comparison so far as W.B.C. changes are concerned.

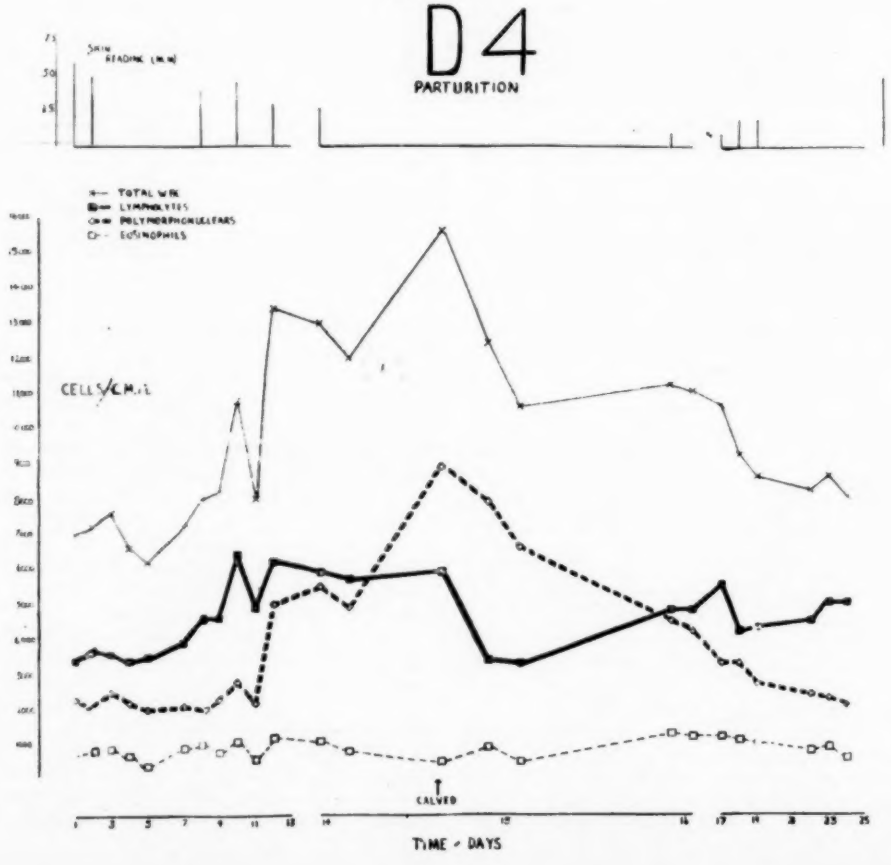
Graphs I and II, already described, indicate the W.B.C. changes which occur in the tuberculosis-positive and the tuberculosis-negative animal following the intradermal injection of tuberculin. Graph III shows the W.B.C. changes which occur at parturition. The characteristic changes are the " crossing over " of the polymorphs and lymphocytes and the absolute reduction in the number of lymphocytes immediately after calving. Animals such as this exhibit marked loss of skin sensitivity of both the tuberculin and anaphylactoid tricin types. Graph IV indicates the W.B.C. changes which occur following the intramuscular injection of adrenal-cortical hormone (lipoadrenal cortex preparation of Upjohn). Again we have the characteristic drop in lymphocytes and the rise in polymorphs, and again there was evidence of skin-desensitisation. Supplies of this hormone preparation were strictly limited and it was only used in trichomonad-sensitised animals. Graph V shows the effect of the intravenous injection of 1 gramme sphingomyelin. The W.B.C. changes are similar to those recorded above and we have evidence that desensitisation to both tuberculin and tricin is produced. Graphs VI and VII indicate the effects of the intramuscular injection and the intrauterine instillation of antigen in the sensitised animal. Again we have the characteristic W.B.C. changes and again skin desensitisation ensues. Control experiments were run parallel to all of the above investigations.

A comparison of these graphs leads to the following conclusions: (a) the overall W.B.C. picture in each case is substantially the same, (b) the polymorph lymphocyte ratio is markedly altered in each case with a rise in the relative (and absolute) number of polymorphs and a fall in lymphocytes, and (c) each of the procedures produces an absolute or relative loss in skin sensitivity.

All of this work supports the general thesis, propounded in a number of recent American publications (*e.g.*, White and Dougherty, 1946) that W.B.C.s and, in particular, lymphocytes play a very important part in the genesis and manifestations of many immune phenomena.

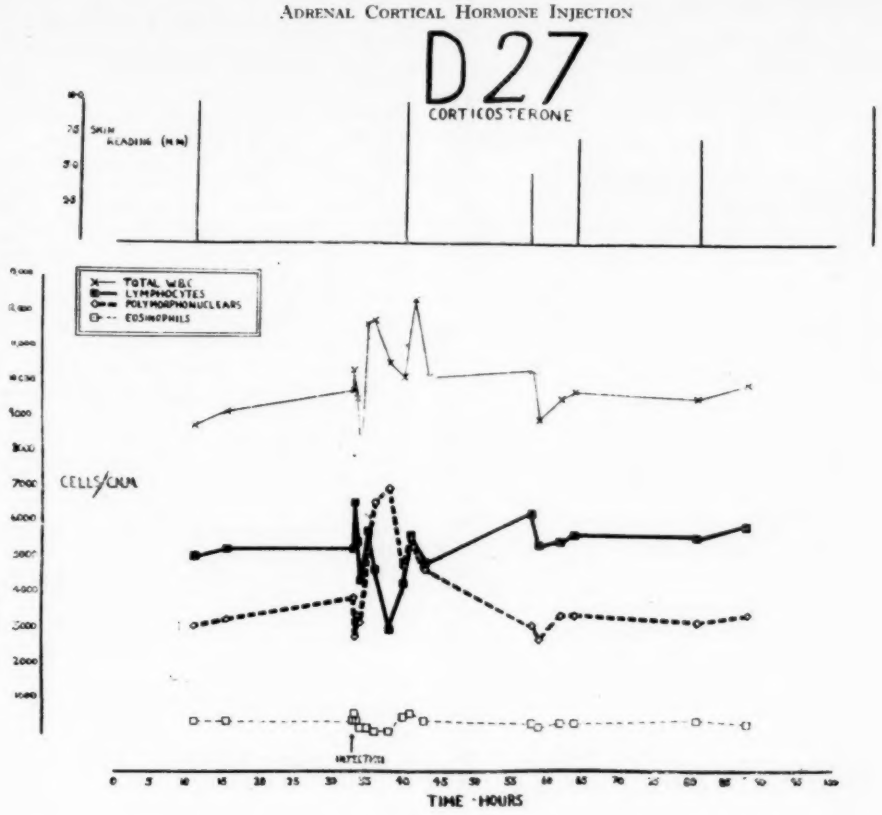
GRAPH III

PARTURITION



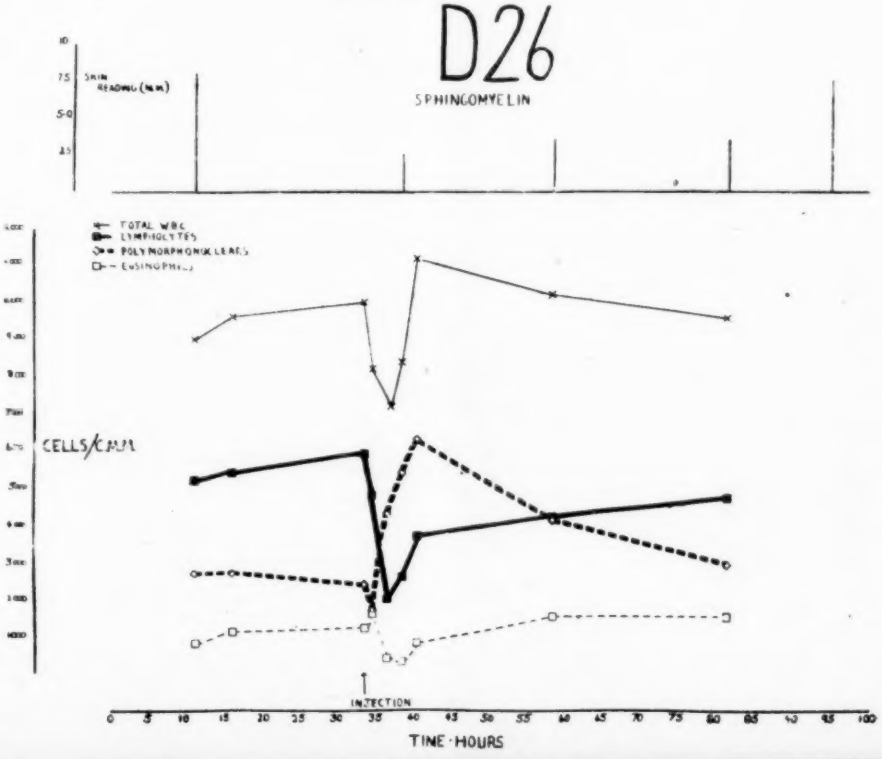
GRAPH IV

ADRENAL CORTICAL HORMONE INJECTION



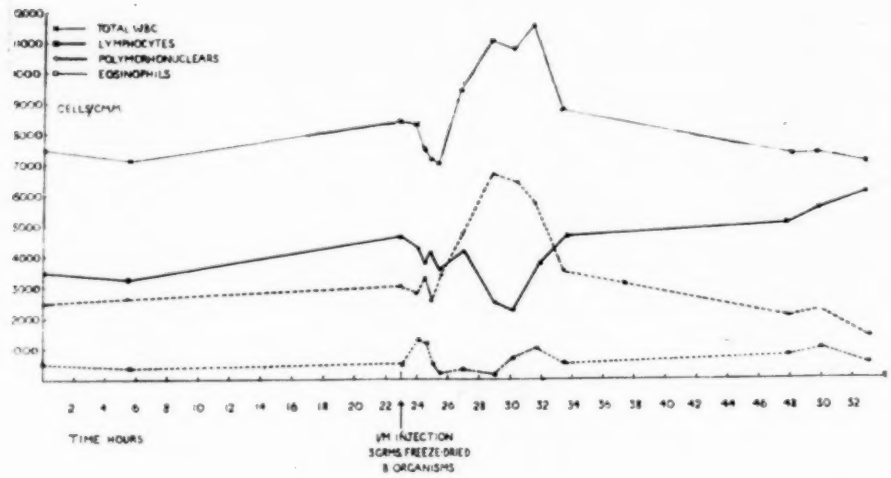
GRAPH V

SPHINGOMYELIN INJECTION



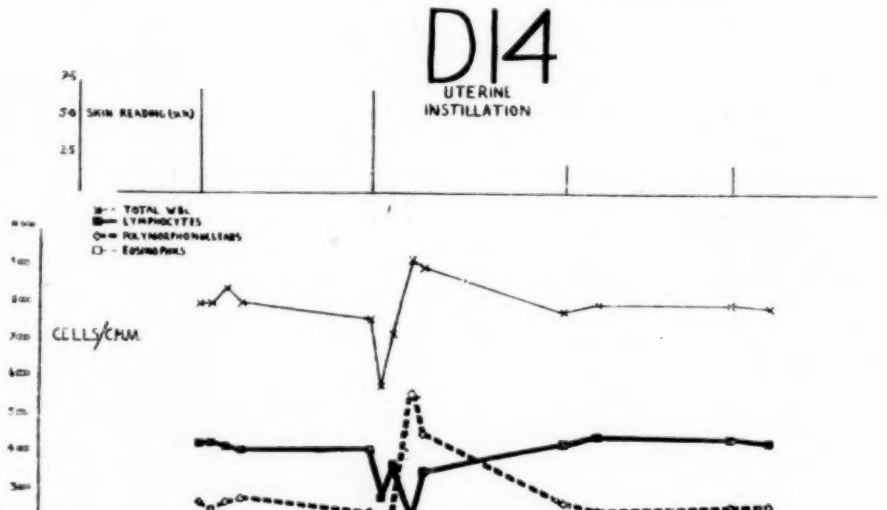
GRAPH VI

INTRAMUSCULAR INJECTION OF ANTIGEN IN SENSITISED ANIMAL



GRAPH VII

INTRAUTERINE INSTILLATION OF ANTIGEN IN SENSITISED ANIMAL



General Conclusions

1. The Stormont test appears to be much more efficient than are either the Single Intradermal or the S.I.D. Comparative Tests in animals of unknown origin and history. Further, field experience indicates that this test is efficient and reliable when used for general testing purposes in tuberculosis-free herds and in herds which are being graded-up for attestation. Skin tuberculosis remains a problem and the Stormont test is no better, though no worse, than any of the other testing procedures when dealing with this condition.

2. The white blood cell changes (involving an increase of polymorphonuclears relative to lymphocytes) which occur as a result of the second Stormont tuberculin injection appear to be diagnostically reliable. Unfortunately, the maximum alteration in the polymorph: lymphocyte ratio occurs at a varying time interval after tuberculin injection, a fact which means that multiple bleeding is required. This renders the procedure unsuitable for general testing purposes though it should prove useful in particular cases in which intradermal test results are in dispute.

3. In a proportion of cases, tuberculin sensitivity can be transferred from tuberculous bovine to normal guinea-pig by means of white blood cells. This finding affords proof of the presence of sensitising antibody in the tuberculous animal, and, at the same time, suggests that white blood cells are directly implicated in the production of sensitivity phenomena.

4. White blood cell changes produced by a wide variety of stimuli, *e.g.* (a) the injection of tuberculin, (b) parturition, (c) the injection of adrenal cortical hormone, (d) the injecton of sphingomyelin and (e) the injection of antigen in the sensitised animal, result in the same overall W.B.C. picture with a polymorph: lymphocyte ratio in excess of one. Each of these procedures produces an absolute or relative loss of skin sensitivity.

5. One very important outcome of this work is the suggestion that any procedure which produces a marked "cross-over" blood reaction results in some degree of skin desensitisation. Certain tendencies in some of this work suggest that, if a marked blood reaction occurs, desensitisation may be of relatively long duration and that the time interval which must elapse before re-testing must be subjected to considerable further investigation.

6. Finally, all of this work supports the thesis that white blood cells and, in particular, lymphocytes are very important factors in the manifestations of many immune phenomena.

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THE VETERINARY RECORD
August 6, 1949

ARTIFICIAL INSEMINATION

THE third Annual Report of the Production Division of the Milk Marketing Board in relation to artificial insemination for the period April 1st, 1948, to March 31st, 1949, is published in this issue of *The Veterinary Record*, and contains information of unusual interest to all members of the profession.

The rapid growth of artificial insemination is shown by the fact that no less than 11 per cent. of the dairy cattle of the country—totalling 256,054 cows and heifers—were inseminated at Milk Marketing Board centres in the period under review. The percentage of dairy cattle inseminated at Board and non-Board centres was 15 per cent. of all dairy cows and heifers in the country. One-third of all registered producers in England and Wales are members of artificial insemination centres, indicating the enormous field of operations. These figures serve to emphasize the tremendous responsibilities which those charged with the development and control of artificial insemination centres have accepted in ensuring the maintenance of a high degree of technical efficiency as well as the most careful selection of bulls used for the widespread service made possible by this method of breeding.

The veterinary officers at artificial insemination centres play an extremely important part, since the technical efficiency of their respective centres is dependent upon them. The final paragraph of the Board's Report acknowledges the debt which is owed to them in the following words :—

" The expansion of the work that has taken place during the year—an increase of 275 per cent. on last year—has already been described and the fact that standards have been maintained has been demonstrated. It is greatly to the credit of the Board's A.I. veterinary staff, who have planned their expansion, selected and trained their men and supervised their work, that this development has taken place smoothly, for what is being dealt with is not something machine made but a fairly delicate biological process. Credit is due, too, to the inseminating staff and the centres' office staff for the parts they have played."

The figures for conception rates outlined in the report indicate a high degree of efficency and correspond with those obtained at non-Board centres. Any misunderstanding regarding the meaning of " conception rate " should be removed once and for all by the very careful definition which is included in the report as a footnote to page 5.

Conception rates are recognised as valuable and practical indices of efficiency ; they do not and are not intended to convey that the figures published are those of actual calves produced from first inseminations. It has been claimed, and limited figures can be produced in support, that a remarkably accurate figure of actual calves produced can be obtained by a deduction of up to 10 per cent. from the conception rate figures for first inseminations, calculated at three months.

Now that such a large percentage of cows are being inseminated valuable information regarding seasonal and area fluctuations of fertility, should they occur, will be made available from year to year. Careful herd records are maintained at every centre and where infertility is being experienced in individual herds, such records can and will be made readily available to the farmer's veterin-

ary surgeon and in addition, comparison of the conception rates of the bulls used during the particular period may be made from other herds.

The occurrence of infertility with or without clinical manifestation of lesions likely to be responsible may tend to accentuate the practitioner's difficulties but should act as a further spur to his endeavours and emphasize his responsibilities. New knowledge should become available from the increased observations, enquiry and research into the problems of infertility arising in connection with artificial insemination which may reorientate our ideas and play an important part in the increased knowledge of infertility problems.

The report indicates fully the close collaboration necessary between the centre, through its veterinary officer, and the practising veterinary surgeon to the mutual benefit of the artificial insemination service and the service which the practitioner can render the farmer.

The profession's responsibility in the future expansion of this branch of science and the contribution it can make to the economics and improvement of the national dairy herd is very obvious. The representation of the profession, through the N.V.M.A., on the various advisory committees of centres, indicates that the Central Advisory Committee, the Milk Marketing Board and non-Board centres appreciate the importance of the closest liaison, interest and understanding which must exist between the centres and all branches of the profession.

U.S.A. SURVEY OF VETERINARY FEES

In its July issue, *Veterinary Medicine* (Chicago) prints the following survey, by John B. Bryant, D.V.M., and H. E. Hanna, D.V.M., of fees or following services (five miles from office), compiled from returns made by the East Central Iowa group of practitioners. The survey is dated April 13th, 1949, and the current exchange rate is $4 30c. to the £.

	Average	*High*	*Low*
1. Treat milk fever, one visit	$ 6.00	$ 7.00	$ 5.00
2. Replace everted uterus, bovine	10.50	25.00	5.00
3. Caesarean on sow	10.50	20.00	5.00
4. Caesarean on cow	16.50	25.00	7.50
5. Spay bitch (brought to office)	5.75	8.50	2.50
6. Retained placenta, bovine, one visit ...	5.50	7.50	5.00
7. Dystocia, bovine, simple, requiring traction only	6.00	10.00	5.00
8. Dystocia, bovine, head back, requiring embryotomy	10.00	13.00	6.75
9. Serum-virus vaccination, cholera; 100 pigs, average dose of serum 35 cc. ...	82.50	92.00	75.20
10. Erysipelas serum and culture to 100 pigs, three to ten days old	45.00	75.00	26.00
11. Administer porcine mixed bacterin to 100 head of 30-lb. pigs	25.00	35.00	10.00
12. Private brucellosis test, 20 head of cows, in stanchions	15.00	20.00	10.00
13. Brucellosis test and vaccinate five heifers, six months of age	8.50	12.50	5.00
14. Brucellosis vaccinate, no test, five heifers, six months of age	6.00	11.50	4.50
15. Emasculatome operations on ten head of 300-lb. bulls	6.00	10.00	4.00

* * * * *

Weekly Wisdom

We must admit the incomprehensible; we need not manufacture it.—Gerald Petrie.

CLINICAL COMMUNICATION

FRACTURES OF HUMERUS AND FEMUR REPAIRED BY INTRA-MEDULLARY PINS

N. R. TURNBULL, M.R.C.V.S.

Basingstoke

It is felt that the following two representative cases may be worthy of record in view of the increasing interest in bone surgery in the veterinary field. They illustrate the techniques evolved in a series of clinical trials in the open reduction and internal fixation of long bone fractures.

Case I.—Young male cat. Oblique fracture of humerus sustained some hours previously.

Operation

Anaesthesia.—Deep nembutal anaesthesia by the intravenous route.

Preparation.—The limb is clipped closely over the whole shoulder area and extending down to the lower third of the radius and ulna. The animal is placed in lateral recumbency with the affected limb uppermost. The whole operation area is then thoroughly prepared with a one per cent. solution of Cetavlon, by an assistant who then holds the limb by the foot, keeping it clear of the other leg. The operator then places a sterile towel under the limb, pushing it well up into the axilla. A second towel is held under the affected leg and the assistant drops the leg on to it; it is then wrapped round the foot and secured with a clip. Other towels are then placed to cover the animal, leaving the shoulder and elbow area exposed.

Technique.—The incision is begun just above the point of the shoulder and passes antero-laterally to the lateral aspect of the elbow joint. It passes through skin and subcutaneous fascia and the fracture site is located by blunt dissection between muscles. Care is taken to avoid the cephalic vein and the musculo-cutaneous branch of the radial nerve. The aponeurosis over the anterior crest of the bicipital tuberosity is now exposed. A crucial incision is made with the point of the scalpel at the highest accessible part. Keeping in line with the shaft of the humerus, a small hole is made with a gimlet. This is enlarged with a small-size twist drill until the drill point is felt to go through into the medullary cavity. Having determined that this hole is in the correct position, it is enlarged with a $\frac{1}{8}$ inch twist drill. A stainless steel pin $\frac{1}{8}$ inch in section and 4 inches long with a spiral point (made for me by Chas. F. Thackery, Ltd., of Leeds) is now introduced through the drill hole until it appears at the site of fracture. The fracture is now reduced and the pin pushed down the medullary cavity of the distal fragment and lightly screwed into the cancellous bone in the distal end of the shaft. The fragments are then bound together with a circumferential stainless steel wire. The projecting end of the pin is cut off with a file about $1\frac{1}{2}$ inches above the point of entry into the bone and the subcutaneous fascia and skin are sutured over it. The wound is then insufflated with sterile penicillin and sulphamezathine powder and is carefully sutured in layers using 4/0 catgut for the buried sutures and No. 1 nylon for the skin. No dressings are applied.

Post-operative Care and Progress.—The animal was returned home the following day with instructions to the owner to keep it quiet and not to interfere with the incision. Forty-eight hours post-operatively the cat was walking

FIG. I. *Case 1 :* Pin in position before removal.

FIG. II. *Case 1 :* Bone, 24 hours after removal of pin.

FIG. III. *Case 2 :* Bone, (three weeks post-operative) before removal of pin.

FIG. IV. *Case 2.* Bone, after removal of pin.

normally and showed no evidence of pain. Healing was by first intention and the pin was removed under light nembutal anaesthesia four weeks after the operation.

Fig. 1 shows the fracture with the pin in position just before removal.

Fig. 2 shows the bone 24 hours after removal of the pin.

CASE II.—Young adult bull terrier bitch. Oblique fracture upper third of femur sustained one week previously.

OPERATION

Anaesthesia.— Deep nembutal anaesthesia by the intravenous route.

Preparation.—The limb is clipped from the mid-line of the sacral area down to the hock joint. It is prepared with Cetavlon and towels are placed in position in a similar manner to Case I.

Technique.—The incision commences about 1½ inches above the great trochanter and extends downwards, following approximately the line of the normal femur, to the lateral aspect of the stifle joint. The fracture site is exposed by blunt dissection between muscles.

The trochanteric fossa is then exposed and a hole drilled through it into the medullary cavity, using a ⅛ inch twist drill. A ⅛ inch section 8 inches long stainless steel pin of the same pattern as in Case I is then introduced into the cavity. The remainder of the technique follows closely that for repair of the humerus.

Post-operative Care and Progress.—The animal was returned home the following day. The wound healed by first intention. The pin was removed under pentothal anaesthesia three weeks post-operatively. This animal did not use the limb properly for about a month, probably owing to the long time between injury and operation, but once it started using it normality quickly was restored.

Figs 3 and 4 show the bone three weeks post-operatively before and after removal of pin.

ACKNOWLEDGMENTS

My thanks are due to Mr. E. Knight, M.R.S., and Miss Tozer, M.R.S., for the excellent radiographs, and to Mr. G. T. Bowler, M.R.C.V.S., for his assistance at the operations.

[Illness Associated with Lameness in Sheep After Dipping. GILL, D. A. (1948.) *Austr. vet. J.* **24.** 297-301.]

Symptoms of lameness and systemic disturbance were observed in a number of flocks several days after dipping; the mortality rate was very low but the illness lasted for several days with a consequent loss of condition.

Erysipelothrix rhusiopathiae was isolated from the subcutis of the pastern of a ewe. An attempt was made to reproduce the disease in other sheep, and this was successful in two cases where the skin of the pastern region was either scarified or incised and 0.1 ml. of a culture of *Erysipelothrix rhusiopathiae* applied.

Serological investigations were also undertaken and it was found that antibodies were produced rapidly after infection, but that the titre waned quickly after the infection was overcome.

It is concluded that *Erysipelothrix rhusiopathiae* enters via skin abrasions, and that infection is contracted from the dip bath. Although the dips contained benzene hexachloride in the majority of cases, this substance could not always be incriminated.

S. J.

ABSTRACTS

[Virus Diseases in the Cat. JENNINGS, A. R. (1949.) *Brit. vet. J.* **105.** 89-98.]

The essential differences between feline influenza and feline enteritis are clearly stated with the aid of two graphs, two tables of differential leucocyte count, and four microphotographs. Much of the work is directed towards confirming or comparing the observations of Baker (1944) and of American and continental workers.

(*a*) *Feline Influenza*.—After describing the familiar clinical picture in young cats, the incubation period of seven to 14 days, and the moderately low mortality rate, a table of differential leucocyte counts is given ranging from two to 13 days after infection. Relative neutrophilia of up to 76 per cent. was a marked feature, with a corresponding eosinopaenia and lymphopaenia. A constant monocytosis was observed, ranging from 3 per cent. two days after infection to 20 per cent. at the eighth day, but was not considered to be of diagnostic significance.

Gross pathology showed a fairly constant picture of acute pulmonary congestion leading into broncho-pneumonia with consolidation and with subsidiary lesions in naso-pharynx, eyes, lingual dorsum and pleura. A noticeable feature was the presence of haemorrhages in the lung substance. No constantly occurring inclusion bodies were demonstrable microscopically. Neither were bacteriological findings constant. Dalling (1935) and Baker (1944) indicated that the condition was due to a filterable virus. In the present series the organisms isolated from the oculo-nasal discharges included streptococci (mainly Lancefield Group G), staphylococci, and in one case, a pasteurella.

(*b*) *Feline Enteritis*.—The condition differs clinically from the preceding in the rapidity of its onset and course, absence of oculo-nasal discharge, profound depression succeeded by coma and a high mortality rate. It is between this disease and one described by American and continental workers variously as malignant feline leucopaenia, feline agranulocytosis, and feline fulminating panleucopaenia, that a marked similarity of the leucocyte picture occurs. In 15 natural and two experimental cases studied by the author the leucocyte count fell rapidly from just over 12,000 per c. mm. to 8,000 at four days and as low as 900 in ten days immediately preceding death. In addition to the pronounced leucopaenia the differential leucocyte count also differed from that observed in feline influenza. The neutrophil count fell steadily to about 36 after ten days, producing a relative lymphocytosis.

The most constant *post-mortem* lesion observed was inflammation of the latter portion of the small bowel, with an abundant mucopurulent exudate into the empty and contracted intestines. Only slight catarrh was noted in the stomach. The bone marrow invariably was found to have changed from a solid column to a semi-liquid mass of fat and small haemorrhages.

Some possible inclusion bodies were noted. These were not constant; they were intranuclear and eosinophilic. The ileo-caecal lymph node invariably was oedematous.

The author's conclusion is that, in spite of the marked leucopaenia, the condition known as feline enteritis in Great Britain is not identical with the feline agranulocytosis of Hammon and Enders (1943).

J. P.

REPORT

ARTIFICIAL INSEMINATION

Report to the Milk Marketing Board for the Year April 1st, 1948—March 31st, 1949

[This report, to the importance of which in relation to the work of the veterinary practitioner attention is drawn in our editorial columns, is reproduced virtually in full below, with the exception of those sections of the Appendix relating to the lists of M.M.B. Centres and Sub-centres, and of bulls purchased and on hire. (Tables A and C, respectively.) Table B of the Appendix, however, giving the number of paid inseminations by Centre and Breed at Non-Board A.I. Centres, is included.]

1. Introduction

During the year ending March 31st, 1949, there has been further and extensive A.I. development. Eleven centres were already in operation at the beginning of the year; the following centres (with their dates of opening) have been added to the group:—

Praze (Cornwall). May, 1948. Glynllifon* (Caerns.). June, 1948.

Gloucester (Glos.). May, 1948. Writtle (Essex). Nov., 1948.

Honiton Clyst (E. Devon). Sept., 1948. Whalley (Lancs.) March, 1949.

Tean (Staffs.). September, 1948.

Twenty new sub-centres (or their equivalent) have been started during the year, the number now being 43. A full list of main centres and their branches is given in the Appendix A1-4.

2. Growth in Membership and Numbers of Cows Inseminated

The growth in membership and numbers of cows inseminated are as follows:—

Year	Number of members	Number of paid inseminations	Cows a member
1946 ...	922	6,401	6·9
1947 ...	4,420	25,535	5·8
1948 ...	12,766	90,173	7·1
1949 ...	33,249	256,054	7·7

The figure of 7·7 cows a member is interesting for two reasons. The first is that it gives a control on a feature that is difficult to assess—the number of members who have become inactive, *i.e.*, have ceased to use A.I. If this number were large the number of cows a member would decline and it will be seen that it has not done so. Secondly, it is almost identical with the same statistic for Denmark and the United States—in the latter country last year two million cows were inseminated in the herds of 250,000 members, *i.e.*, eight cows a member.

Board A.I. membership is now approximately one-fifth of the number of registered producers and the number of cows inseminated is more than eleven per cent. of the dairy cattle in the country. The number of cows inseminated during the same period at non-Board centres is given in the Appendix (page A5) and these, added to Board centre cows, give a percentage for the country of 16.8.

Some interesting facts (on a regional basis) as to numbers of milk producers and the proportions of them that are (a) in the National Milk Records movement, (b) members of A.I. centres and (c) members of the Dairy Breed Societies are given in Table I.

TABLE I

REGIONAL MEMBERSHIP OF (*a*) NATIONAL MILK RECORDS, (*b*) A.I. CENTRES, AND (*c*) DAIRY BREED SOCIETIES

Regions	Milk producers	Membership of		
		National milk records	A.I. Centres	Dairy breed societies
1. Northern ...	26,060	2,787	1,938	2,649
2. N. Western ...	25,140	2,018	3,408	3,113
3. Eastern ...	9,850	1,898	4,758	1,572
4. E. Midland ...	9,490	1,551	1,717	1,864
5. W. Midland ...	14,150	1,758	6,484	1,808
6. N. Wales ...	11,070	780	2,635	453
7. S. Wales ...	16,180	1,345	6,075	1,159
8. Southern ...	7,780	2,072	6,141	2,114
9. Mid-Western ...	13,710	2,299	6,461	1,789
10. Far Western ...	19,400	1,490	7,163	1,034
11. S. Eastern ...	8,600	3,287	3,083	3,040
All Regions ...	161,430[1]	21,285[2]	49,863[3]	20,595[4]

[1]. As at March 31st, 1949.
[2]. As at September 30th, 1948.
[3]. These figures incorporate the 33,249 members of the Board's centres on March 31st, 1949, and also 16,614 members of non-Board centres at December 31st, 1948.
[4]. From the N.M.R. Annual Report, 1948.

The N.M.R. position is referred to later, but here the other two features may be commented upon. The total (Board and non-Board) A.I. membership is almost one-third of the number of registered producers and is two and a half times as large as that of the Dairy Breed Societies. In regions where A.I. was first developed, *e.g.*, the Southern and Eastern Regions, the proportion of producers in A.I. is very high.

TABLE II

Centre	Membership at March 31st, 1949			Total membership, March, 1948
	Life	Annual	Total	
Beccles	1,964	661	2,625	1,525
Carmarthen	4,423	1,173	5,596	2,122
Cheswardine ...	2,329	605	2,934	2,269
Chippenham ...	611	242	853	63
Frant/Whiligh ...	2,181	523	2,704	1,079
Gloucester	1,046	270	1,316	—
Glynllifon	565	263	828	—
Honiton Clyst ...	371	142	513	—
Little Horwood ...	1,972	902	2,874	1,465
Praze	1,372	437	1,809	—
Shincliffe	1,411	527	1,938	1,391
Sturminster Newton	998	285	1,283	694
Tarporley	1,775	356	2,131	352
Tean	821	353	1,174	—
Torrington	1,724	381	2,105	1,173
Welshpool	1,574	510	2,084	633
Whalley	84	19	103	—
Writtle	261	118	379	—
All Centres	25,482	7,767	33,249	12,766

*Previously operated by the Ministry of Agriculture as a disease-control centre.

The growth in membership at each centre is shown in Table II (centres are arranged in alphabetical order and those with no membership in 1948 are, of course, the new ones opened in the past year).

Carmarthen heads the list with more than 5,500 members and there are few centres with less than 1,000 members. Some very large increases have taken place at Whiligh (Kent/Sussex), Welshpool (Montgomeryshire) and Little Horwood (Buckinghamshire); even Beccles (Suffolk), the Board's oldest centre, has acquired more new members than in any previous year, having increased from 1,525 to 2,625. Perhaps one of the most remarkable centres is Tarporley (Cheshire), which opened in December, 1947: this centre has grown from a membership of 352 at the start of the year to 2,131 at the end. The ratio of "life" to "annual" members is now 3:1 compared with 2:1 last year.

3. Numbers of Cows Inseminated by Centre and Breed

Table III gives the numbers of cows inseminated for each centre, together with an analysis by the breed of bull used. It will be seen that Carmarthen leads with 38,758 cows inseminated during the year and that Cheswardine (Shropshire) is second with 30,746. Among the newer centres Tarporley is again outstanding with 21,594 cows inseminated. In this area the average size of herd is larger than elsewhere and it was thought that this fact would at least counterbalance the great density of cattle. It is clear that for one reason or another A.I. is making an appeal in large as well as small herds.

As to the breed of bull used, the main herd demand, as shown by the number of inseminations, is in the following order:—

Breed	Per cent. of total inseminations
British Friesian	40·3
Dairy Shorthorn	26·3
Ayrshire	11·6
Guernsey	7·2
Jersey	3·0
Beef	8·6

For two reasons this order of breed demand cannot be held to show breed preference for the whole country. The first is that there are areas in England and Wales where the A.I. service has only recently been started or has yet to be developed and where breed demand is unknown; secondly, these figures relate only to the Board's centres and there are other areas serviced by non-Board centres where the breed demand is quite different; for example, the Dartington Hall centre (non-Board) specialises almost exclusively in a service for the South Devon breed. However, given these limitations, the table does begin to show certain quite definite area breed trends and preferences; for instance, in the Beccles area nearly 14,000 inseminations out of a total of just over 20,000 have been from bulls of the Friesian breed (Table III), and in the Shincliffe area nearly 50 per cent. have been by bulls of the Shorthorn breed, while at Praze nearly 60 per cent. of the inseminations have been from bulls of the Guernsey breed.

During the year a total of 21,919 inseminations—8.6 per cent. of the total—were carried out from colour-marking beef bulls (Hereford and Aberdeen Angus): the majority of these have been given in the areas of Shropshire, Northamptonshire and Montgomeryshire. From all reports it appears that the purpose of this service, which is a free service sponsored by the Ministry of Agriculture, is meeting

Table III

Number of Paid Inseminations by Centre and Breed. April 1st, 1948–March 31st, 1949

Centre	Ayr-shire	N. Devon	S. Devon	Friesian	Guernsey	Jersey	Red Poll	Short-horn	Welsh Black	Beef	Total
Beccles	805	—	—	13,626	206	1,300	1,261	2,649	—	270	20,117
Buxton	71	—	—	69	7	6	—	53	—	22	228
Carmarthen	3,999	—	—	18,697	87	803	1	14,273	62	836	38,758
Cheswardine	3,859	—	—	16,532	414	421	1	5,378	12	4,129	30,746
Chippenham	851	—	—	2,905	831	300	—	3,148	—	393	8,428
Gloucester	643	—	—	4,886	703	121	3	1,893	—	1,325	9,574
Glynllifon	689	—	—	911	52	20	—	1,121	630	834	4,257
Honiton Clyst	442	291	19	985	302	70	29	917	—	1	3,056
Little Horwood ...	1,538	—	—	5,907	1,635	1,593	—	4,652	—	4,561	19,886
Praze	194	84	1,003	1,146	5,732	155	69	1,383	—	3	9,769
Shincliffe	2,046	—	—	2,763	81	125	—	6,246	—	1,463	12,724
Sturminster Newton ...	1,112	—	—	4,596	2,106	287	4	5,146	—	830	14,081
Tarporley	4,800	—	—	11,472	298	248	50	3,640	—	1,086	21,594
Tean	1,296	—	1	3,043	152	75	—	1,835	—	1,195	7,597
Torrington	2,906	3,327	180	3,458	950	216	78	6,120	—	177	17,412
Welshpool	1,611	—	—	6,229	246	142	14	1,894	500	4,361	14,997
Whalley	125	—	—	54	—	—	—	33	—	—	212
Whiligh	2,361	—	—	4,359	4,731	1,662	17	6,576	—	416	20,122
Writtle	217	—	—	1,327	62	135	11	240	—	17	2,009
Total	29,565	3,702	1,203	102,965	18,595	7,679	1,538	67,197	1,204	21,919	255,567
Breed percentage ...	11·6	1·4	0·5	40·3	7·3	3·0	0·6	26·3	0·5	8·6	100·0

TABLE B (from Appendix)

NUMBER OF PAID INSEMINATIONS BY CENTRE AND BREED AT NON-BOARD A.I. CENTRES FOR THE YEAR APRIL 1ST, 1948, TO MARCH 31ST, 1949

Centre	Ayr-shire	Devon	South Devon	Friesian	Guernsey	Jersey	Lincoln Red	Red Poll	Short-horn	Welsh Black	Beef	Total
Bangor (taken over by the Board, June 24th, 1948)	—	—	—	—	—	—	—	—	188	99	—	287
Cambridge	91	—	—	3,071	47	579	—	108	2,950	—	664	7,510
Dartington Hall	811	14	15,237	1,744	1,526	42	—	—	635	—	209	20,218
Hampshire cattle breeders ...	1,219	—	—	2,622	7,220	1,426	—	—	5,184	—	—	17,671
Ilminster	3,549	783	—	12,535	5,301	467	—	7	19,232	—	193	42,067
Mid-Worcestershire ...	1,811	—	—	6,343	309	305	—	—	3,823	—	3,388	15,979
Reading	595	—	—	4,811	5,983	1,931	—	—	7,079	—	955	21,354
Ruthin	549	—	—	1,643	17	6	—	—	3,382	115	530	6,242
South Lincolnshire	—	—	—	481	—	2	385	—	—	—	—	868
All Non-Board Centres ...	8,625	797	15,237	33,250	20,403	4,758	385	115	42,473	214	5,939	132,196
All Board Centres	29,565	3,702	1,203	102,965	18,595	7,679	—	1,538	67,197	1,204	21,919	255,567
Total	38,190	4,499	16,440	136,215	38,998	12,437	385	1,653	109,670	1,418	27,858	387,763

a real need and that it is not being abused. There are reports, too, that the calves produced are making very satisfactory prices.

4. The Seasonal Nature of the Work

As the movement spreads seasonal breeding patterns become more and more pronounced and differences reveal themselves even in the territory covered by a centre and its sub-centres. This fact permits the movement of unmarried staff to help at busy seasons and already this has been arranged on a small scale.

5. Conception Rates*

(*a*) GENERAL

Before discussing features of the year affecting conception rate, mention should be made of the change that has taken place in the assembly of this important information. Because a very large number of members' A.I. accounts are offset against the milk cheque, copies of the serially numbered field book slips for all inseminations are sent daily to head office for accounting purposes. After they have been used for this they are sorted out by a section which specialises on conception rates and, from month to month, the conception rate for each centre, sub-centre and bull are calculated and circulated within a few days to the veterinary managers at all centres. One further change has been made; now that the numbers of inseminations have increased, there are sufficient at each main centre to give a good index of the fertility of individual bulls and it is no longer necessary to add to this the number of inseminations carried out at sub-centres. This means that bull fertility can be judged entirely on the semen at the main centre, which is under the constant observation of the veterinary surgeon, and that the picture is no longer affected by variations in conception rate that might be the result of sub-centre work. As in the past, main and sub-centres continue to calculate conception rates obtained by members of their inseminating staff.

* The conception rate is the percentage of cows inseminated for the first time which are assumed to be in calf if they have not returned to service after an interval of three months, *e.g.*, a conception rate of 65 per cent. means that, out of 100 cows inseminated for the first time, 65 appear to have been got in calf. First inseminations only are used, since, the second and third inseminations being free, the member is likely to notify a return to the first, but may not do so when he has to pay again.

TABLE IV

ANNUAL AND QUARTERLY CONCEPTION RATES BY CENTRES (January-December, 1948)

Centre	Total	%	January to March		April to June		July to September		October to December	
			Number	%	Number	%	Number	%	Number	%
Beccles	16,706	65·6	4,850	65·1	3,206	66·0	1,911	63·6	6,739	66·3
Carmarthen	32,732	61·9	4,386	63·8	9,242	64·2	9,015	68·1	10,089	53·4
Cheswardine	29,596	63·9	7,137	65·4	9,154	63·1	5,822	63·4	7,483	63·9
Chippenham	4,374	58·5	63	46·0	810	54·7	875	60·7	2,626	59·3
Gloucester	5,466	63·2	—	—	834	49·5	1,334	64·1	3,298	66·3
Glynllifon	1,926	64·6	—	—	106	62·3	575	67·7	1,245	63·4
Honiton Clyst	1,416	65·3	—	—	—	—	92	52·2	1,324	66·2
Little Horwood	15,631	67·9	4,311	70·6	3,539	68·6	2,240	68·5	5,541	65·0
Praze	5,750	60·4	—	—	1,040	50·4	1,405	59·4	3,305	64·0
Shincliffe	11,859	62·6	3,162	60·8	3,072	65·8	2,349	65·7	3,276	59·1
Sturminster Newton	12,165	62·6	3,127	61·7	2,979	56·8	2,051	63·5	4,008	67·2
Tarporley	16,280	68·3	2,424	66·9	4,385	66·9	3,389	66·3	6,082	70·9
Tean	2,716	66·1	—	—	—	—	—	—	2,716	66·1
Torrington	15,068	59·8	2,952	57·9	3,880	56·0	3,507	58·6	4,729	65·1
Welshpool	11,763	69·3	2,105	67·9	2,827	67·9	2,761	69·3	4,070	70·8
Whiligh	15,404	59·6	2,781	60·7	3,624	60·5	2,978	57·3	6,021	59·7
Writtle	605	54·2	—	—	—	—	—	—	605	54·2
All Centres	199,457	63·7	37,298	64·3	48,698	62·9	40,304	64·5	73,157	63·4

(b) Annual and Quarterly Conception Rates by Centres

Table IV gives the annual and quarterly conception rates by centres for the period January to December, 1948.

The overall conception rate based on 199,457 inseminations is 63.7 per cent. This is a slight reduction on last year's figure of 64.4 per cent. based on 63,495 inseminations, which may be the result (see later) of (a) the relative increase in the number of inseminations carried out at sub-centres and (b) the fall in the conception rate for the large Carmarthen centre in the last quarter of the year.

Now that certain centres are well established, have a large complement of bulls and are carrying out a standard technique with well-trained staff, it is reasonable to consider area differences in cow fertility based on centre conception rates. The Little Horwood and Welshpool centres continue to maintain a conception rate above the average while, although the difference is not great, the Shincliffe and Frant centres are below the average. Perhaps the most surprising result is that for Tarporley, which has the second highest conception rate (68.3 per cent.), for the Cheshire area has been held to be one in which disease is prevalent and it is known that during the past year many herds in this area have taken to A.I. because of sterility troubles.

As A.I. develops it is obvious that these centre conception rates are going to be of great value in indicating year to year fluctuations in the fertility of different areas.

There is little to note on the seasonal variations except to remark that again a slight fall is to be seen in the April/June quarter as compared with the January/March quarter —64.3 per cent. to 62.9 per cent. Last year the drop was from 64.4 per cent. to 62.9 per cent.

(c) Conception Rates by Breed of Bull

Conception rates for each breed for which more than 1,000 inseminations have been carried out during the year are given in Table V.

Table V

Conception Rates by Breed of Bull
(January-December, 1948)

Breed	Total new inseminations	Conception rate
		Per cent.
Friesian	79,860	64·9
Shorthorn	56,180	63·7
Ayrshire	22,786	60·0
Guernsey	13,495	56·7
Jersey	5,968	58·7
North Devon	2,867	59·2
Red Poll	1,281	62·1
Beef	15,638	71·6

It will be seen that bulls of the Friesian and Shorthorn breeds have given very similar conception rates—64.9 per cent. in the former case and 63.7 per cent. in the latter. This is a reversal of last year's order, when the Shorthorn figure was 66.0 per cent. and the Friesian 64.4 per cent. The conception rate for inseminations from Ayrshire bulls is 60.0 per cent. and here it is of interest to note that the c.r. for the Scottish A.I. centre (Dumfrieshire), which is in fact an Ayrshire breed conception rate, is 60.4 per cent. The conception rates for bulls of the Channel Islands breeds are seen to be 56.7 per cent. and 58.7 per cent.; it should be remembered that a good proportion of the Channel Islands semen that is used is transported between centres and that the numbers on which c.r.'s are calculated are much smaller than for the other breeds. In addition the number of bulls used—which is more important than the number of inseminations—is very much smaller and the effect of one or two bulls with low c.r.'s is proportionately greater. This is known to be a factor in the Guernsey c.r. which, incidentally, improved towards the end of the year; for the last quarter (October-December) at the Praze centre the c.r. on 1,885 new inseminations was 64.9 per cent.

The conception rate from the beef inseminations is extremely interesting, for here again much of the semen is transported, but in spite of this the c.r. is the highest of all—71.6 per cent. In addition, in one area in which there are 73 herds using only beef semen, the conception rate was 77.1 per cent. It is proposed to take a closer look at this group of herds: all that can be said meantime is that they are milk-selling herds in which, because of the breeding policy being followed, the complete use of the beef service has been agreed to.

(d) Conception Rates by Age of Bull

In the 1948 report a study of the effect of age of bull on conception rate was made on 134 bulls, but for this year it has been possible to make the investigation on a total of 302 bulls. The result is given in Table VI.

Table VI

Conception Rates by Age of Bull*

Age	Number of bulls	New insem-inations	Pregnant	Conception rate
				Per cent.
Under 1 year	13	704	412	58·5
1 year and under 2 years	70	25,364	15,428	60·8
2 years " 3 "	48	35,639	22,953	64·4
3 " " 4 "	37	34,457	22,409	65·0
4 " " 5 "	32	25,371	16,418	64·7
5 " " 6 "	26	22,816	14,354	62·5
6 " " 7 "	20	10,744	6,622	61·6
7 " " 8 "	15	18,422	11,373	61·7
8 " " 9 "	12	8,019	4,562	56·9
9 " " 10 "	4	1,308	778	59·5
11 " " 12 "	1	110	60	54·5
12 " " 13 "	1	841	433	51·5
14 " " 15 "	1	24	11	45·8
Beef bulls (Average age 2·6 years)	22	15,638	11,196	71·6
	302	199,457	127,009	63·7

* Age of bulls as at June 30th, 1948.
(Includes all inseminations done with semen from non-Board bulls.)

The age/fertility trend is similar to that shown last year—an increase to the second/third year to a level which is maintained to the fifth year and which afterwards declines by small amounts with increasing age. (The information for bulls above nine years of age is scanty and should be disregarded.)

(e) Conception Rates within Herds

The use of the c.r. to point to trouble herds continues to be a most valuable diagnostic. "Within herd" c.r.'s (calculated for herds of ten cows or more) are given in Table VII for the main centres of Beccles, Cheswardine, Shincliffe, Little Horwood and Carmarthen.

TABLE VII

(1948/49)

Herds with initial c.r. of :	Number of herds	%	73 herds using all beef semen	%
Per cent.				
Under 25	17	0·9	1	1·4
25 and under 50	261	13·6	0	0
50 and under 75	1,128	58·9	29	39·7
75 and under 100	478	24·9	35	47·9
100	32	1·7	8	11·0

The overall c.r. for the main centres from which these herds have been selected is approximately 65.5 per cent. and in view of the constancy of this frequency distribution for the past three years (see Reports 1 and 2), it should now be sound to assess the herd fertility picture in an area from the normal c.r. for the centre servicing it.

On the right-hand side of Table VII is given the distribution of herd fertilities for the 73 herds using beef semen. The very different effect of a c.r. of 77.1 will be observed.

(*f*) CONCEPTION RATES AT MAIN AND SUB-CENTRES

When A.I. development is complete it is obvious that the greater part of the service will be given from sub-centres: during the past year a change from a ratio of two inseminations at a main centre to one at a sub-centre to a 1:1 ratio has already taken place. It is therefore interesting to compare the c.r.'s obtained at sub-centres with those at main centres. The overall comparison for all centres and sub-centres which operated for a minimum of six months during the year under review is as follows:—

	Number of 1st inseminations	Conception rate
Main centres ...	111,286	64·8%
Sub-centres ...	77,422	62·1%

An attempt has been made to analyse the position in detail in order to see if the method of packing and transport, seasonal variations in temperature (which might affect semen and transport) or the distance of sub-centres from the main centre might be found to influence the results. So far these influences, if they exist, are masked by what can only be thought to be area differences in fertility. For example, the annual c.r.'s for Shincliffe and its three sub-centres are very similar (Main: 62.8 per cent. Sub-centre 1:62.1 per cent., 2: 62.5 per cent., 3: 62.3 per cent.) and the same is true of Tarporley (Main: 68.2 per cent. Sub-centre 68.6 per cent.). At Whiligh each of the three sub-centres has a c.r. slightly above that of the main centre (Main 58.9 per cent. Sub-centre 1:59.8 per cent., 2:62.3 per cent., 3:59.9 per cent.), while at Cheswardine and Carmarthen all sub-centre c.r.'s are five to ten per cent. below the main centre c.r.

6. Management Factors

(*a*) *Financial Result*.—The accounts for the year have already been published ("The Home Farmer," May, 1949). They show a profit on the year of £5,593 3s. 5d., and as a result of this (plus a small surplus made last year) a sum of £6,000 has been handed to the Treasury in partial repayment of earlier claims made under the financial guarantee.

(*b*) *Inseminations a Bull*.—The average number of new inseminations for each bull in a centre for the full year was 1,297 (1946: 572 inseminations. 1947: 975). It will be seen that it has again been possible to make fuller use of the bull stud (partly the result of greater dilution rates) without affecting the conception rate. The largest number of cows inseminated from one bull was 3,856; from four bulls more than 3,000 new inseminations were carried out.

(*c*) *Inseminations and Inseminator*.—The number of new inseminations performed by each inseminator (calculated on centre and sub-centre team averages) varied between 1,080 (Torrington) and 2,100 (Tarporley). These two centres are almost at extremes as far as the density of cow population and terrain are concerned. At Carmarthen—intermediate in these respects—the number was 1,536. However, among centres with the lowest output for the year there is scope for improvement, particularly in adjusting the staff needed to give the service at scattered sub-centres with small cow populations.

7. The Bull Position

(*a*) BULLS IN USE

There were 303 bulls at Board centres on March 31st, 1949. Numbers by breed are as follows:—

Ayrshire	51 (20)[1]	Shorthorn ...	94 (69)
British Friesian ...	86 (50)	South Devon ...	2 (—)
Devon	4 (2)	Welsh Black ...	4 (2)
Guernsey	12 (9)		
Jersey	14 (9)	Aberdeen Angus ...	4 (4)
Red Poll	6 (2)	Hereford	26 (15)

[1] Number of bulls at start of year.

The breeding of bulls bought or hired during the year is given in Appendix pages A6-14.

(*b*) PEDIGREE ANALYSIS AND BULL SELECTION

The large increase in the demand for A.I. has put a heavy strain on Bull-Selection Committees and the Board's staff who have the task of finding the bulls to keep up with it. Fortunately, good relations have been established with many outstanding breeders who offer, with increasing confidence, both bulls for sale and the best type of breeder's bull for hire. During the year a special effort which has been made to interest milk recorders in helping to locate suitable bulls has begun to bear fruit.

Between April, 1948, and March, 1949, a total of 893 dairy bulls were put on offer and of these 269 were placed on test with the Ministry of Agriculture. Out of this number 114 were fully approved by the end of the year, 22 were provisionally approved and 133 had been rejected. The great majority of the last group failed to pass the veterinary tests.

In spite of the increase in the number of bulls bought and hired, a good standard has been maintained. Table VIII gives an analysis of the average milk yields of dams and grand-dams arranged as in previous reports; a comparison with the latter shows that there has been little, if any, reduction in performance.

The Bureau of Records continues to render invaluable service in the preparation of pedigrees of bulls on offer and in keeping up-to-date the pedigrees of bulls already in use. The average number of records in an M.M.B. A.I. pedigree now exceeds 70.

TABLE VIII

PEDIGREE SUMMARY OF M.M.B. BULLS (March, 1949)

Breed	Ancestors	Number of animals	Average highest lactation			Average of all lactations (approx. 4 for each ancestor)		
			Milk yield, (lb.)	Days in milk	Fat %	Milk yield, (lb.)	Days in milk	Fat %
Friesian	Dams	70	14,746	349	3·76	12,473	336	3·73
	Sire's dams	70	16,259	348	3·83	13,160	335	3·80
	Dam's dams	67	14,334	348	3·66	12,070	344	3·64
Shorthorn	Dams	77	11,074	310	3·76	9,507	306	3·75
	Sire's dams	77	11,178	314	3·76	9,684	306	3·70
	Dam's dams	75	9,981	318	3·71	9,076	302	3·68
Ayrshire	Dams	38	12,152	344	4·06	10,414	316	4·07
	Sire's dams	38	12,573	326	4·43	10,572	305	4·37
	Dam's dams	37	11,042	328	4·01	10,025	308	4·11
Guernsey	Dams	12	11,512	361	4·51	9,647	341	4·61
	Sire's dams	12	11,763	356	4·69	10,554	346	4·57
	Dam's dams	11	10,574	345	4·91	8,557	309	4·82
Jersey	Dams	13	11,117	341	4·91	9,787	333	5·04
	Sire's dams	12	11,852	338	5·13	11,157	335	5·08
	Dam's dams	7	11,538	324	5·29	10,133	325	4·92
Red Poll	Dams	4	10,768	325	3·87	9,163	322	3·72
	Sire's dams	4	13,105	349	3·65	11,386	326	3.60
	Dam's dams	4	8,171	318	3·63	7,774	338	3·75

8. Dairy Husbandry Matters

(*a*) DAIRY HUSBANDRY OFFICERS

A development of the year has been the appointment of three Dairy Husbandry Officers. Dairy cattle improvement through A.I. is a team job in which the Board's National Milk Records movement and the Bureau of Records have important parts to play and one of the main functions of the Dairy Husbandry Officers is to assist the A.I. movement in the field by acting as a link between A.I. and recording. Ways in which the link is being forged are described in the paragraphs which follow.

(*b*) BULL-PROVING HERDS

The 1948 Report of the Bureau of Records contained the result of an investigation into the progeny-testing of dairy bulls, which showed that nearly 80 per cent. of pedigree dairy sires in use had fewer than ten daughters in milk. Breeding by A.I. relies on the test by progeny more than on any other pedigree criterion and it is fortunate that the technique is able to make good the lack of numbers which characterises natural mating progeny-tests. The A.I. movement has to plan its own progeny-testing and Dairy Husbandry Officers have been working with A.I. centres to help in selecting bull-proving herds and to see that new bulls are used in them.

(*c*) *A.I./N.M.R.* MEMBERSHIP

The scope for progeny-testing depends on (a) the number of A.I. users who record and (b) the number of heifer calves identified (tattooed) at birth. Each of these important matters has been given attention during the year. A special publication has been prepared to interest the A.I. member with the larger herd in official recording, and in addition to the change of N.M.R. rule on calf-marking (which has already had a most encouraging effect), a special A.I. centre/N.M.R. office arrangement has been made which should have a very good habit-forming result in A.I. herds. By the arrangement the milk recorder follows up all A.I. work in recorded herds and seeks permission to earmark the progeny.

The numbers of A.I. members in National Milk Records at the various Board centres at March 31st, 1949, are given in Table IX.

TABLE IX

PROPORTION OF A.I MEMBERS RECORDING AS AT MARCH 31ST, 1949

Centre and Sub-Centre area	Total A.I. members	Number of A.I. members recording	Proportion of A.I. members recording
			Per cent.
Beccles	2,625	386	14·7
Carmarthen	5,596	535	9·6
Cheswardine	2,934	375	12·8
Chippenham	853	144	16·9
Gloucester	1,316	198	15·0
Glynllifon	828	78	9·4
Honiton Clyst ...	513	56	10·9
Little Horwood ...	2,874	365	12·7
Praze	1,809	89	4·9
Shincliffe	1,938	122	6·3
Sturminster Newton ...	1,283	170	13·3
Tarporley	2,131	175	8·2
Tean	1,174	87	7·4
Torrington	2,105	137	6·5
Welshpool	2,084	156	7·5
Whalley	103	18	17·5
Whiligh	2,704	693	25·6
Writtle	379	110	29·0
	33,249	3,894	11·7

(*d*) PROGENY—RECORDS OF BULLS USED FOR A.I.

The Bureau of Records is organised to extract the progeny-tests of all A.I. bulls and to supply them to the A.I. movement. In future years the service will be on a scale much larger than at present, but already there are results which indicate the level of transmitting ability of which A.I. bulls are capable. The following table summarises daughter records of 34 bulls in use at Board A.I. centres. (Many of the records were made by daughters sired before the bulls were purchased for A.I.)

PROGENY RECORDS OF BULLS STANDING AT THE BOARD'S A.I. CENTRES

Breed	Number of bulls	Summary of daughter records: Designation	Number of records	Average: Milk yield (lb.)	Average: Fat (%)
Ayrshire	7	1st (heifer) lactation	128	7,942	3·90
		2nd lactation	71	8,355	3·73
		3rd lactation	26	8,259	3·75
Friesian	11	1st (heifer) lactation	129	7,820	3·55
		2nd lactation	55	8,127	3·52
		3rd lactation	12	9,483	3·56
Guernsey	3	1st (heifer) lactation	19	6,869	4·48
		2nd lactation	10	6,779	4·68
		3rd lactation	4	7,237	4·34
Jersey	3	1st (heifer) lactation	58	5,691	4·99
		2nd lactation	40	6,650	4·94
		3rd lactation	17	7,112	5·07
Shorthorn	10	1st (heifer) lactation	168	6,732	3·68
		2nd lactation	89	7,482	3·61
		3rd lactation	51	8,252	3·57

This summary, a picture presented by averages, is an index of the possible *mass effect* of A.I. on cattle improvement. Yet the bull, as an individual, remains the all-important animal on which progress is based and the task of assessing the value of each and every sire progeny-test is always present. Selection on progeny-test cannot be reduced to a statistical formula, for husbandry has to be taken into account. The Dairy Husbandry Officer service will assist A.I. Centre Committees in this important undertaking.

(*e*) A.I. PROGENY AND BREED SOCIETY REGISTRATION

A.I. has been developed mainly in the interests of the commercial milk producer, a fact which is bound to have an influence on the commercial nature of the standards set for bull-selection and the order of importance attached to the numerous points on which a bull and his pedigree are to be judged. On the other hand, there are many pedigree breeders who use A.I. either completely for small herds or selectively in larger ones. An attempt has been made in two ways to measure the extent to which A.I. is being used in pedigree breeding.

As to A.I./Breed Society membership: All new A.I. memberships (6,246 in number) received at Board centres in the three months January to March, 1949, were examined for membership of Breed Societies and it was found that 530 were enrolled. 5,716 did not appear to have a Breed Society affiliation. The main groups were:—

British Friesian, 165 members; Ayrshire, 76; Jersey, 99; Shorthorn, 69; and Guernsey, 87 members.

It has been mentioned that many pedigree breeders use A.I. selectively—for special matings, for example, or to overcome breeding troubles. For this reason, membership is not the best index of the effect of A.I. on the numbers of progeny entered in the Herd Books and for a more accurate picture we are indebted to the Shorthorn Society which has kindly allowed us to extract from its records the numbers of A.I. progeny registered in the 12 months ending December, 1948. First, the progeny of M.M.B. Shorthorn bulls: in the corresponding "service" year (preceding the year of registration by nine months) approximately 30,000 cows were inseminated with Shorthorn semen and out of this number a total of 505 notifications of progeny eligible for the Herd Book were received. Of these 70 were pedigree bulls, 220 pedigree heifers and 215 heifers in the grading-up scheme.

An estimate has also been made of the proportion of all registrations of A.I. progeny (excluding the progeny from A.I. carried out privately in members' own herds) to total breed registrations. For the former, registrations of calves by Shorthorn bulls at non-Board centres (also extracted from the Society's records) have been added to the results already given for Board bulls.

	All A.I. registrations, 1948	Total breed registrations[1]	%
Pedigree bulls	210	8,077	2·6
Pedigree heifers	604	15,968	3·8
Grading-up heifers ...	887	18,000	4·9
	1,701	42,045	4·0

[1] For 1947. 1948 not available.

The conclusion would appear to be to date the A.I. service is being used very largely for the purpose for which it was intended, *i.e.*, for the improvement of commercial dairy cattle.

9. The A.I. Staff

During the year there have been two additions to the Board's permanent veterinary staff—Mr. J. P. Frappell, M.R.C.V.S., in charge of the Gloucester centre, and Mr. A. H. Watson, M.R.C.V.S., in charge at Whalley (Lancs.). There have been no resignations from the staff.

In addition a policy of staffing main centres with young veterinary graduates—one at each centre in a group under the control of a senior veterinary surgeon—has been adopted. These appointments are temporary and, in addition to veterinary and routine duties to be carried out, the holders are encouraged to take an interest in breeding problems in their areas.

The staff of inseminators—including Head Inseminators at main and sub-centres—now numbers 278 (120 at March, 1948). A very good type of man is being selected and the attractiveness and interest of the work is reflected in the extraordinarily small number of resignations or dismissals and the waiting list of applicants at all centres.

The expansion of the work that has taken place during the year—an increase of 275 per cent. on last year—has already been described and the fact that standards have been maintained has been demonstrated. It is greatly to the credit of the Board's A.I. veterinary staff, who have planned their expansion, selected and trained their men and supervised their work, that this development has taken place smoothly, for what is being dealt with is not something machine-made but a fairly delicate biological process. Credit is due, too, to the inseminating staff and the centres' office staff for the parts they have played.

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THE INTERNATIONAL VETERINARY CONGRESSES

Meeting of the Permanent Committee

Dr. De Blieck, General Secretary of the Permanent Committee for the International Veterinary Congresses, reports that at the meeting of the Permanent Committee held at "l'Office International des Epizooties," 2, rue de Prony, Paris, on May 21st, 1949, there were present :—

From the Bureau of the Permanent Committee : Messrs. Leclainche (France), President ; Cabot (Great Britain), Vice-President ; De Blieck (Holland), General Secretary and Treasurer.

Members : Messrs. Heywood (Australia), Schaffer (Austria), Petersen (Denmark), Wooldridge (Great Britain), Capobianco (Italy), Hopkirk (New Zealand), Aaser, as substitute for Slagsvold (Norway), Sanz Egana (Spain), Alegren (Sweden), Flueckiger (Switzerland) and Graeub (Switzerland).

Visitors : Messrs. Dalling (Great Britain), Minett (Pakistan) and Ramon (France).

Apologies for absence were received from Messrs. Van Goidsenhoven (Belgium), Stenius (Finland), Browne (Eire), Manninger (Hungary), Pfaff (Czechoslovakia) and Mohler, Vice-President (U.S.A.).

Dr. De Blieck, having welcomed those attending, reported that Professor Dr. Leclainche had retired from the presidency of the Permanent Committee for reasons of health ; also Dr. Mohler, both as Vice-President and as a member of the Permanent Committee representing the U.S.A.

Chairman.—Sir Daniel Cabot, the second Vice-President, was appointed Chairman of the meeting.

The Chairman thanked Dr. Leclainche for his valuable services during the long period during which he had officiated as President.

Reports

Dr. De Blieck read his report on the activities of the Permanent Committee since its last meeting, also the financial report (these reports were circulated). The latter showed that the voluntary contributions made by the various countries for the maintenance of the Secretariat were :—

Denmark	275.63	dutch guilders	
England	213.60	„	
France	247.00	„	
Norway	320.00	„	
Sweden	1,538.00	„	
Turkey	1,420.50	„	(promise)
U.S.A.	1,056.00	„	
Portugal	471.00	„	
Switzerland	1,537.50	„	(this contribution was paid in 1948).

The Chairman thanked Dr. De Blieck for his reports, which were approved by the members.

Nomination of New Members

The following nominations—the majority proposed by the veterinary organisations concerned—were received :—

Austria.—Ministerialrat Tzt. Dr. Karl Schaffer, Director of Veterinary Services—Vienna.

Canada.—Dr. C. A. Mitchell, Dominion Animal Pathologist, Department of Agriculture—Ottawa.

Egypt.—Dr. Ahmad Mabrouk Bey, Director of Veterinary Services—Giza-Cairo.

Finland.—Dr. Rainer Stenius, Councillor of the Veterinary Department of the Agricultural Ministry—Helsinki.

Italy.—Dr. M. Capobianco, Director of Veterinary Services—Rome.

New Zealand.—Dr. C. S. M. Hopkirk, Veterinary Adviser of the High Commissioner for New Zealand—London.

Norway.—Professor Dr. Lars Slagsvold, Director of Veterinary Services—Oslo.

Poland.—Dr. St. Krauss, Director of the Veterinary Department, Ministry of Agriculture—Warsaw.

Portugal.—Professor Dr. Joaquim Fiadeiro, Professor of the Veterinary Faculty, University—Lisbon.

Turkey.—Professor Dr. S. N. Yalki, Dean of the Veterinary Faculty, University—Ankara.

United States of America.—Dr. W. A. Hagan—New York.

Concerning Canada, the Secretary intimated that the Deputy Minister of the Department of Agriculture at Ottawa had advised the substitution for Dr. Childs of Dr. C. A. Mitchell, Dominion Animal Pathologist, Department of Agriculture, the Department deeming it more appropriate that Dr. Childs should act as their representative on the Office International des Epizooties.

The Director of Veterinary Services of Israel, Dr. S. Freund, at Tel Aviv, had written asking that a representative from that country should be included in the Permanent Committee.

Dr. Minett mentioned that Pakistan would be pleased to become a member of the Permanent Committee and that the actual representative would be selected later. He also agreed to investigate the situation concerning India. The Chairman pointed out that the rule, laid down for membership of the Permanent Committee, reads that the Veterinary Organisation of the country concerned should make the necessary approach and should nominate a member.

After discussion the meeting admitted Israel and Pakistan for inclusion in the list of countries represented on the Permanent Committee and accepted the nominations : the new members will be proposed for election at the XIVth International Veterinary Congress.

Congress Fund

The resolution of the XIIIth International Veterinary Congress at Zürich-Interlaken in 1938 was amended as follows :—

" In order that the International Veterinary Congresses may be held in all countries, it is resolved, that from all participating countries, which are represented in the Permanent Committee, a contribution may be made to a Congress fund, by which, if necessary, the expenses of the printing costs of a congress, completely or partly, and of the Secretariat of the Permanent Committee may be paid.

" The contribution by each country will be fixed in comparison with the number of graduate veterinary surgeons in that country, member of a veterinary organisation.

" The Congress fund shall be administered by the Bureau of the Permanent Committee."

The amount of payment from the different participating countries was discussed on the lines of a sum proportionate to the number of veterinary surgeons in the country. It was pointed out that contributions are voluntary and are made by the veterinary organisation and not by governments. The sum of about one Dutch guilder per veterinary surgeon was mentioned. No decision was arrived at : the details of this subject are to be discussed again at the meeting in London.

The practical side of the question will be a matter of further study, the result of which will be propounded to the Congress.

Proposals for the Nomination of New Members

It was unanimously agreed that henceforth proposals for the nomination of a new member of the Permanent Com-

mittee should be made by the National Committee of those countries where a vacancy exists. (Indications of the manner in which new members should be nominated, were wanting in the Statutes of the Permanent Committee.)

Proposed Permanent National Committees

The establishment of National Committees was discussed. In the past, whenever a congress was held, special national committees were established in all countries concerned.

The suggestion now is, that each participating country should set up a Permanent National Committee, the members of which might, of course, be changed from time to time; the Chairman should, if possible, be the member of the International Permanent Committee.

It was thought that the establishment of such permanent committees would ensure smooth procedure in the matter of arrangements for the Congress and that membership would be stimulated.

Dr. De Blieck reported that Chili objected to this arrangement; he undertook to write to Chili on the subject.

Official Languages

The question of including Spanish as an official language of the Congress was discussed. The languages laid down are French, English and German, and the language of the country in which the Congress is held. It was also explained that, according to §25 of the Congress Bye-Laws, a further language may be included if there are at least 200 subscribing members of the Congress from the country concerned, on the condition that the country pays for interpretations. A point raised in this connection was the position arising when more than one country was concerned and it was asked if the 200 subscribing members might be recruited from the various countries speaking the language in question.

It was decided that it is now too late to make any arrangements for the addition of an official language in respect of the London Congress and that further discussion should be deferred until a later meeting of the Permanent Committee.

The Presidency.—The nomination of a new President will take place after the Congress in London, where the Bureau of the Permanent Committee will be elected out of and by the members. Until then the Vice-President, Sir Daniel Cabot, will act as President.

Nomenclature of Animal Diseases.—Reference was made to this matter, which had been discussed at the last Congress. It was resolved that any country which had discussed the subject should send its decisions to Dr. Du Toit—Pretoria (South Africa).

Place of Next Congress.—A letter was read from the Permanent National Committee of Sweden, in which the International Permanent Committee was invited to hold the next Congress in Stockholm. The invitation had the approval of the Ministry of Agriculture of Sweden.

The Chairman thanked the representatives from Sweden for their kind invitation and said it was the only invitation received up to date. He indicated that it would be discussed, together with any others which may be received, at the meeting in London.

Other Matters

Dr. Schaffer (Austria) raised the question of the participation of members in the visits to laboratories, abattoirs, etc., during the week following the Congress in August and enquired if letters could be sent to the Governments of the different countries, saying how important it was that the delegates should have permission to extend their attendance at the Congress in London in order to make these visits.

It was agreed that this matter should receive attention.

Dr. Wooldridge gave a short talk on the progress of the arrangements for the Congress in London in August.

It was agreed that the next meeting of the Permanent Committee should take place in London on Sunday, August 7th, at 14.15 hours; the place of the meeting will be announced later.

The Chairman thanked the delegates for their attendance and closed the meeting.

UNQUALIFIED VETERINARY PRACTICE

[Contributed]

In the language of the Veterinary Surgeons Act, 1948, "The restriction of practice of veterinary surgery by unqualified persons" became effective at midnight July 29/30th of this year.

After that time and date no unqualified person may practise veterinary surgery or medicine unless his name appears on the Supplementary Veterinary Register, or he has, prior to July 30th, applied for his name to be placed on that register and his case is still pending before the Council of the Royal College. Such a person will either be placed in due course on the Supplementary Veterinary Register, or be refused admission after which he will not be permitted to carry on practice.

The Act contains certain exceptions to the general rule. The first of these is the treatments and operations which may be given, or carried out, by unqualified persons under the First Schedule to the Act. This, in general, allows the person who is a *bona fide* member of a household or of a farm to carry out treatment of animals in that house or farm. In the same way a person not a member of a household or farm may render in an emergency first-aid for the purpose of saving life or relieving pain; or may destroy any animal by painless methods.

It will still be permissible for an unqualified person to perform any of the following operations provided that person is over the age of 18:—

(*a*) castration or caponising;
(*b*) the spaying of a pig not over the age of three months;
(*c*) the tailing of a lamb;
(*d*) the docking of the tail of a dog before its eyes are open;
(*e*) the amputation of the dew claws of a dog before its eyes are open;

and in the case of castrations the animal must not have exceeded the age shown below:—

Horse, pony, ass or mule	2 years
Bull	15 months
Goat	15 months
Ram	15 months
Boar	9 months
Cat	6 months
Dog	6 months

Another exception to the general rule is any minor treatment, test or operation specified by order of the Minister after consultation with the Council of the Royal College of Veterinary Surgeons. It is understood that the Minister is making only two such orders; one will apply to physiotherapists and will enable such persons to give treatment to animals, but only under the direct supervision of a veterinary surgeon. No physiotherapist will be allowed to accept any work directly from a lay person.

The other order is referring to B.W.D. test in poultry, and will enable persons employed by hatcheries to continue to apply this test for the time being.

Another temporary exception from the general rule, and the word temporary should be emphasised, is section 7 of the Act which has the title "Licensing of employees of animal welfare societies." This section, as was said in Parliament on behalf of the Minister, and has been said during the negotiations leading up to the Act also on behalf of the Minister, is a tapering section or, in other words, transitional.

Had the prohibition on the practice of veterinary surgery by unqualified persons been made completely effective on July 29th many clinics providing free treatment for the animals of the poor would have been compelled to close down owing to the present temporary shortage of veterinary surgeons. Under section 7, which applies solely to societies *wholly* supported by voluntary contributions or endowments, and which were providing on July 30th, 1948, free medical or surgical treatment for animals, the Minister may, if he is satisfied that a society cannot obtain an *adequate* number of veterinary surgeons, grant a licence to an employee of such a society to give certain limited medical and operative treatment for the relief of pain as may be authorised by the licence. It should be noticed that the terms of the licence must be strictly complied with and the holder can only treat an animal if its owner appears to be unable to afford the services of a veterinary surgeon. Should there be any breach of such conditions the Minister may withdraw the licence.

The intention of the section is that the number of licences granted by the Minister shall diminish as soon as is possible depending on the supply of veterinary surgeons to carry out the charitable work of such societies.

Many questions have been asked about the Supplementary Veterinary Register. It should be remembered that this register will in time cease to exist. Every person placed on such register at the present time must be at least 28 and his name may only remain on such register provided that it is not struck off for any conviction or unprofessional conduct.

The title of the register must be emphasised. There is a tendency to speak of the Register of Veterinary Practitioners. This is quite false; the correct title is the Supplementary Veterinary Register, and the correct legal designation of a person entered on that register is "a person registered on the Supplementary Veterinary Register," in the same way as the correct legal designation of a qualified person is "a person entered on the Register of Veterinary Surgeons."

The title "Veterinary Practitioner" is a general title applicable to both persons on the Register of Veterinary Surgeons and persons on the Supplementary Veterinary Register, and is descriptive; that is, it means to say a person practising veterinary surgery and medicine on a State register. Persons on the Supplementary Veterinary Register have not got the exclusive right to the title "Veterinary Practitioner."

As has been said above, any person who has applied for registration on the Supplementary Veterinary Register before July 30th and in whose case the Council of the Royal College has not made, as yet, a decision is permitted to continue practice until a decision is reached. Then such person may carry on practice if his name is registered on the Supplementary Veterinary Register, or else he must cease practice because his application has been refused.

The position will not be clarified until later in the year when the Council has made a decision about all the applicants. However, this is a position which has been met before when a profession has been closed.

It is believed that the Dental Board in 1921, and the immediate year succeeding, had to consider about 12,000 applications in similar circumstances. It is understood that the applications received by the Council of the Royal College will not number more than 400, and it may be surmised that not all of these will be successful.

QUESTIONS IN PARLIAMENT

Licensing of Employees of Animal Welfare Societies

Prior to the rising of the House of Commons for the Summer Recess, Mr. Philips Price (July 25th) asked the Minister of Agriculture whether the licensing of employees of animal welfare societies under section 7 of the Veterinary Surgeons Act, 1948, is or is not intended as a transitional provision until sufficient veterinary surgeons are available to carry out the work involved; and whether he can give any indication of the period for which he anticipates that such licensing will be necessary.

Mr. G. Brown: As was made clear when the Veterinary Surgeons Bill was before this House, the licensing of employees of animal welfare societies is intended as a temporary expedient. As the supply of veterinary surgeons increases the number of new licences granted will be reduced until the time when no further licences need be issued. The answer to the second part of the Question is "No."

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Cruelty to Wild Animals (Enquiry)

Mr. Symonds (July 27th) asked the Secretary of State for the Home Department if the Committee of Enquiry on Cruelty to Wild Animals will hear evidence in public.

Mr. Ede: This is a matter for the Committee to decide.

Mr. Symonds: As it is desirable that our constituents should be familiar with all the evidence on both sides in these matters of controversy and as such evidence had better be assimilated in small doses while it is still fresh, rather than in one large lump by publication after the enquiry is over, will my right hon. Friend think of informing the chairman that this House would welcome a public enquiry following the good example of the Royal Commission on gambling?

Mr. Ede: I think the best thing will be for the Committee to consider the answer I gave and the supplementary question my hon. Friend has put.

Earl Winterton: Is there not a very important constitutional issue here, that this House and no Minister of this House has any right to interfere with how a Committee of the kind conducts its business? Is it not for the Committee to decide that?

Mr. Ede: That is what I first said.

Mr. Anthony Greenwood: Is my right hon. Friend aware that holding the meetings of this Committee in public would go a long way towards removing the doubts of those organisations which have expressed their apprehension that one of the members of the Committee is a former master of foxhounds and another is veterinary surgeon to two packs of hounds?

Mr. Ede: A committee which is to enquire into a subject of this kind must be representative of all phases of public opinion and I have no doubt that some people who do not take the same view as my hon. Friend the Member for Heywood and Radcliffe (Mr. Anthony Greenwood) view with dissatisfaction the presence of other members of the Committee.

Brigadier Head: Is the right hon. Gentleman aware that there are a large number of vermin who would like to air some very articulate grievances before this Committee?

Mr. Greenwood: Does my right hon. Friend's first answer imply that it is now his intention to have a burglar on every bench of magistrates?

Mr. Ede: No, Sir, because this Committee will not pronounce on the issue. It would, however, occasionally be of advantage to a Bench to have a burglar as an expert witness.

Mr. Henry Strauss: Will the right hon. Gentleman say what he thinks of the suggestion made by his back bencher that a veterinary surgeon is *prima facie* in favour of cruelty?

Mr. Ede: I did not draw that conclusion from the point which my hon. Friend put.

Mr. Strauss: On what grounds——

Mr. Cecil Poole: On a point of Order. Is it in Order for an hon. Member to refer to another hon. Member of this House as "his back bencher"?

Mr. Speaker: That is a new point to me. I cannot say without giving the matter consideration.

Mr. Strauss: May I at once withdraw the word "his," if I made that slip? Was there any other possible interpretation of the hon. Member's objection to a veterinary surgeon sitting on this Committee?

Mr. Ede: As I said in reply to an earlier supplementary question to another Question, I cannot be responsible for the processes of other people's minds.

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Fowl Pest

Mr. York (July 27th) asked the Minister of Agriculture whether he is aware that the virus of fowl pest has been found in the skin of eviscerated and frozen chickens; and whether he contemplates any new regulations to prevent further importations of this disease.

Mr. T. Williams: Yes; the virus of fowl pest has been recovered from scrapings of the skins of frozen eviscerated carcases of poultry brought from abroad. It was expected that these carcases would be cooked whole and, since cooking destroys the virus, that the risk of conveying the disease to our own flocks would be negligible even where virus was present in a carcase. Since, however, there is still some element of risk, technical experts of the Ministry of Food and of my Department have been sent to the Continent to investigate the conditions under which the trade is conducted, and to advise what further measures can be taken to reduce that risk.

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Royal Military Academy (Horses)

Major Tufton Beamish (July 26th) asked the Secretary of State for War what consideration is being given to the maintenance of sufficient Government horses at the Royal Military Academy to enable officer cadets to ride and to learn to ride as a voluntary recreation.

Mr. Shinwell: It is not possible for horses to be provided from Army funds for this purpose.

Major Beamish: Is the right hon. Gentleman aware that that is a very disappointing reply indeed, and that while it may be necessary to delete horsemanship from the syllabus at Sandhurst, will he not agree that it did a great deal of good in the past? May I appeal to him to reconsider this, for it would cost only a small outlay?

Mr. Shinwell: No doubt horsemanship should be encouraged, but I am sorry that I cannot provide the financial facilities.

Brigadier Head: Is the right hon. Gentleman aware that there is one very big Government horse, the T.U.C., and that it would be a good thing if someone were taught to control it?

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Meat (Slaughtering Policy)

Mr. William Ross (July 13th) asked the Minister of Food when he anticipates his Department will have reached finality on the question of future meat-slaughtering policy.

Dr. Summerskill: This subject is so bound up with the wider question of the marketing of livestock for human consumption that I do not anticipate that a decision will be reached during the lifetime of this Parliament.

Mr. Ross: Will my right hon. Friend say what can be done in Scotland, with which I am particularly concerned, to improve the shocking conditions in the abattoirs, many of which are old and quite unfit for present use?

Dr. Summerskill: The condition of abattoirs is infinitely better than it was before this Government came into office, but if my hon. Friend cares to draw my attention to any particular case I will try to do what I can to remedy the situation.

Mr. Ross: Does not my right hon. Friend realise that one of the reasons why local authorities particularly are unwilling to go ahead and spend money to bring the abattoirs up to date is because they do not know what the future policy is to be?

Dr. Summerskill: I can only ask my hon. Friend to read "Labour Believes in Britain."

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Scotland: Slaughterhouses

Mr. Ross (July 19th) asked the Secretary of State for Scotland when he considers local authorities will be permitted to provide modern slaughterhouse premises and equipment necessary in the interests of food hygiene and public health.

Mr. Woodburn: Work on slaughterhouses in Scotland may be authorised at the present time if it is urgent and essential from the standpoint of public health and food hygiene.

NOTES AND NEWS

Diary of Events

Aug. 8th to 13th.—Fourteenth International Veterinary Congress, Central Hall, Westminster, and Church House, Westminster, London, S.W.1.

Aug. 9th.—Summer Meeting of the Society of Women Veterinary Surgeons, at Windsor (The Old House Hotel), 7.30 p.m.

Aug. 11th.—Last meeting of Council 1948-49 N.V.M.A., at Convocation Hall, Church House, Westminster, London, S.W.1, 11.30 a.m.

Aug. 12th to 15th.—Sixty-seventh Annual General Meeting and Congress, N.V.M.A., in London.

Aug. 12th.—Annual Meeting of the Association of Veterinary Teachers and Research Workers, Royal Veterinary College, N.W.1, 3 p.m. (Please note alteration of date and time.)

Aug. 13th.—Annual General Meeting of the Ladies' Guild, Victoria Veterinary Benevolent Fund, at the Royal Veterinary College, N.W.1, 10.30 a.m.

August 13th.—Fourteenth Annual Meeting of the Royal (Dick) Veterinary College Alumnus Association, at the Café Anglais, 20-21, Leicester Square, London, W.C.2, 1 p.m.

Aug. 15th.—Annual Meeting of the Association of Veterinary Teachers and Research Workers, Royal Veterinary College, N.W.1, 2 p.m.

Sept. 7th.—Meeting of the Southern Counties Division, N.V.M.A., at Salisbury, 6 p.m.

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CONDITIONS OF EMPLOYMENT OF YOUNG GRADUATES

We would draw the attention of intending advertisers in our "Appointments Vacant" column to the request made therein that the salary or salary range offered be stated in their announcements. This request is made in order that the Home Appointments Committee may acquire the evidence requisite for their consideration of the conditions of employment of young graduates, an enquiry in which the Committee is being seriously handicapped by the disappointing response met with hitherto. If, despite the Committee's appeal, any members are not prepared to respond through the medium of their advertisements they are urged, nevertheless, to make the desired information available by advising the Editor of the terms of remuneration offered.

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International Veterinary Congress

Change of Telephone Number

Readers are asked to note that, from Saturday, August 6th (inclusive) the Telephone Number of the International Veterinary Congress will be WHItehall 2366, Extensions 661/2/3.

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N.V.M.A. Congress Photograph

This will be taken on Friday, August 12th, at 5.15 p.m., on the Terrace outside Church House, Westminster, S.W.1.

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PERSONAL

Appointment.—Mr. Arnold Carlyle, B.V.Sc. (Liv.), M.R.C.V.S., of the Unit of Animal Physiology, Department of Physiology, University of Cambridge, has been appointed Senior Lecturer in Veterinary Physiology in the University of Bristol.

Birth.—Barron.—On July 16th, to Betty, wife of N. S. Barron, M.R.C.V.S., a daughter, Priscilla.

Marriage.—Stafford—Lovelace.—At St. Mary's Church, Stalbridge, Dorset, on July 12th, 1949, Lionel P. Stafford, B.Sc., M.R.C.V.S., elder son of Mr. and Mrs. G. L. Stafford, Bradbury Farm, Crick, Chepstow, Mon., to Betty, only daughter of Mr. and Mrs. B. W. Lovelace, Church Hill, Stalbridge, Dorset.

Edinburgh B.Sc. in Veterinary Science.—At a Graduation Ceremonial of the University of Edinburgh, on July 20th, 1949, the undernoted student of the Royal (Dick) Veterinary College graduated as B.Sc. in Veterinary Science: Stanley Murphy, M.R.C.V.S.

Royal Garden Party.—Mr. E. C. Lloyd, Deputy Chief Veterinary Officer of the Animal Health Division, Ministry of Agriculture, and Mrs. Lloyd attended the second Royal Garden Party held at Buckingham Palace.

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Hill Farm Research in Scotland

New Committee Appointed

It will be noted with satisfaction that the veterinary profession is represented by Dr. Russell Greig and Dr. A. T. Phillipson in the new Hill Farm Research Committee which the Secretary of State for Scotland, after discussion with the Minister of Agriculture and Fisheries and in consultation with the Agricultural Research Council, has appointed in succession to the one which he appointed in 1945 and which has just completed its term of office. The new Committee, which is strongly scientific in character, includes a number of members from south of the Border to provide for closer linkage with hill farming research in England and Wales. It is appointed for a period of three years from April 1st, 1949.

The Committee's terms of reference are: To assist the Agricultural Departments to keep under review the importance and urgency of practical problems arising in hill farming; To advise the Agricultural Departments and the Agricultural Research Council on the problems arising from hill farming which require further research, and on the need for extended facilities for research and the form these should take; To frame and implement co-ordinated programmes of work for the special Hill Farm Research Stations in Scotland; To assist the Agricultural Research Council in the co-ordination of research on hill farming problems.

Professor T. J. Mackie, C.B.E., Professor of Bacteriology, Edinburgh University, chairman of the previous committee, has been appointed chairman of the new Committee, the other members being:—

J. V. Allen, Hartsop Hall, Patterdale, Penrith, a prominent farmer in the North of England.

Professor T. L. Bywater, Principal of the North of Scotland College of Agriculture and Professor of Agriculture, Aberdeen University.

Dr. A. E. Cameron, Reader in Zoology at Edinburgh University.

Ian M. Campbell, Bal Blair, Inversbin, Sutherland, a prominent north country sheep farmer, a past president of the National Farmers' Union of Scotland, and a member of Hill Farming Advisory Committee for Scotland.

Dr. Allan Fraser, Lecturer in Animal Husbandry at Aberdeen University.

Dr. J. Russell Greig, C.B.E., Director, Animal Diseases Research Association, Moredun Institute, Edinburgh; member of Technical Committee of Scottish Agricultural Advisory Council; member of Hill Farming Advisory Committee for Scotland.

Dr. J. W. Gregor, a senior research worker on the staff of the Scottish Society for Research in Plant-Breeding, Edinburgh.

George Hedley, Nether Horsburgh, Innerleithen, a prominent Cheviot sheep farmer.

Professor J. Kirkwood, O.B.E., Principal of the West of Scotland Agricultural College, Glasgow; member of Scottish Agricultural Advisory Council and its Technical Committee.

Alastair M'Naughton, Inverlochlarig, Balquhidder, a sheep breeder on an extensive scale; member of the Central Agricultural Executive Committee; a past president of the Blackface Sheep Breeders' Association.

A. M'Vicar, Elswick Hall, Newcastle-on-Tyne, Provincial Director (Northern Province) of the National Agricultural Advisory Service for England and Wales.

Dr. A. T. Phillipson, Head of Physiology Department, Rowett Research Institute, Bucksburn, Aberdeen.

Professor E. J. Roberts, Professor of Agriculture, University College of North Wales, Bangor.

W. H. Senior, Assistant Secretary, Department of Agriculture for Scotland.

Dr. A. B. Stewart, Head of Soil Fertility Department, Macaulay Institute for Soil Research, Craigiebuckler, Aberdeen.

Professor J. Walton, Professor of Botany, Glasgow University.

A. R. Wannop, O.B.E., Technical Development Officer of the Department of Agriculture for Scotland.

Professor S. J. Watson, Principal of the Edinburgh and East of Scotland College of Agriculture; Professor of Agriculture and Rural Economy, Edinburgh University; member of Technical Committee of Scottish Agricultural Advisory Council; member of Hill Farming Advisory Committee for Scotland.

Professor R. W. Wheldon, Professor of Agriculture, King's College, Newcastle-on-Tyne.

Professor R. G. White, C.B.E., Director, Animal Breeding and Genetics Research Organisation, Edinburgh; member of Technical Committee of Scottish Agricultural Advisory Council.

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SPHINGOMYELIN AND "COMPOUND E"

In this issue we publish the further studies on tuberculin sensitivity in the bovine reported on by W. R. Kerr, H. G. Lamont and J. L. McGirr. In this connection reference may be made to the fact that the adrenal hormone "Compound E," as it has been called, has come into great prominence (B.B.C. and Medical journals) in the treatment of rheumatoid arthritis, etc. (the effects of a hormone of the adrenal cortex (17-Hydroxy-11-Dehydro-Corticosterone: Compound E) and of Pituitary Adrenocorticotrophic Hormone on Rheumatic Diseases, British Medical Association, June, 1949).

This is a similar preparation to the one used by these authors in their experiments and it will be a matter of great importance if Sphingomyelin, which they have found to be more active, can replace this Compound E; Compound E apparently cannot be easily produced and the quantity is extremely limited, whereas Sphingomyelin is readily produced.

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FOWL PEST

Reimposition of Restrictions on the Movement and Marketing of Live Poultry

In spite of official action and the co-operation of poultry keepers generally (states a recent Ministry announcement), fowl pest, introduced into this country from abroad some 2½ years ago, is again becoming a serious menace to our poultry flocks. Outbreaks of the disease have occurred in widely separated districts in the last few weeks, and infection has been carried to many poultry-keepers' premises because sick birds and those that had been in contact with them have been sent to markets and handled by dealers.

In order to control the disease, the Minister of Agriculture and Fisheries, after consultation with the Poultry (Stock Improvement) Advisory Committee, has made a new Order, which makes it illegal in any part of England and Wales (other than the counties of Cumberland, Durham, Northumberland and Westmorland, the Furness District of Lancashire and the Isles of Scilly):—

(i) to hold a market, fair or sale of poultry (except on premises to which no poultry have been moved during the preceding 28 days) unless licensed by the Local Authority;

(ii) to exhibit poultry at a show the holding of which has not been authorised by the Ministry;

(iii) to move any poultry from any premises if during the previous 28 days any poultry have been moved on to these premises;

(iv) to move any poultry into Scotland, Cumberland, Durham, Northumberland, Westmorland, the Furness District of Lancashire or the Isles of Scilly from any other part of Great Britain; and

(v) for a poultry dealer to bring together on any premises poultry from more than one place.

The Order continues in force the present regulations (applicable throughout Great Britain) that require auctioneers and dealers to keep records of their sales and purchases of poultry and prohibit the consignment of poultry to railway stations.

The Order applies to domestic fowls, turkeys, geese and ducks, but does not apply to day-old chicks.

Copies of the Order, which is entitled "The Live Poultry (Regulation of Sales, Exhibitions and Movements) Order, 1949," may be obtained from the Ministry of Agriculture and Fisheries, 30, Chester Terrace, Regent's Park, London, N.W.1.

The Ministry asks for the full co-operation of poultry keepers, in their own interests, in seeing that the provisions of the new Order are strictly observed. They are also reminded of the importance of taking special care to prevent their live poultry from having any contact with unboiled foodstuffs which may have been contaminated with the virus of the disease. Viscera, waste portions of a carcase or even the washings or drippings from such a carcase may be the carriers of infection.

Fowl pest is present in several European countries, and since 1947 all poultry carcases imported from the continent of Europe have been eviscerated to reduce the risk of their causing outbreaks of the disease in this country. There is now evidence, however, that this precaution has not been fully effective and technical experts of the Ministry of Food and Ministry of Agriculture are urgently investigating conditions in certain sections of the import trade with a view to reducing the risk of infection being carried in and spread from these carcases.

LEGAL NOTES

Failure of Claim for Professional Services

Can a veterinary surgeon claim fees for professional services in the following circumstances? He is called out late at night to a farm in a remote part of the countryside, but after a fruitless search of an hour returns home at one o'clock in the morning without having found the farm. Next morning, his instructions not having been cancelled, he does the journey again, makes a visual examination of the animal concerned, is informed he is not welcome, and returns home.

At Boston (Lincolnshire) County Court on June 9th, the Registrar decided that no fee could be claimed. The case was one in which Mr. R. D. Callaghan, veterinary surgeon at Boston for the past 16 years, brought an action against a farmer, Mr. L. Pell, to recover £1 11s. 6d. for professional services. His solicitor explained that though the sum was small, the action was brought as Mr. Callaghan believed a principle affecting the entire veterinary profession was involved. "Should the decision be against Mr. Callaghan," he went on, "the position will be that if a veterinary surgeon, or even a doctor, is called out at night into the countryside, and the matter he is called for cleared up, he can wander about looking for the place and then return home without any right to claim payment for time so wasted."

The decision, nevertheless, was against Mr. Callaghan.

The facts were that Mr. Callaghan, while at a public function, received a 'phone message at 9.30 p.m. asking him to go as soon as possible to Mr. Pell's farm to cleanse a mare which had foaled at 11 a.m. that day. At 11.30 p.m. he left home and drove the six miles to Kirton Holme, where he had been told the farm he wanted was the next one past premises he had visited before. But he could not find Mr. Pell's farm, and after searching until 1 a.m. and seeing no lights, he returned home, thinking perhaps his instructions had been cancelled by another call after he left. But there was still no cancellation by 11 a.m. next day, and Mr. Callaghan therefore went out again, found the farm, visually examined the mare and foal, and was told by the farmer's daughter he was not welcome.

He submitted his account, but after argument Mr. Pell said he would pay in Court.

Mr. Pell told the Registrar he had himself cleansed his mare at 11.30 p.m.—the time Mr. Callaghan set out from home—and was with her until 12.30. Until that time he left a light burning in his house, which Mr. Callaghan should clearly have seen from the road.

The Registrar asked Mr. Callaghan: "Would you wish to establish the principle that if you can't find a place, you ought to be paid for looking for it? "—"Yes."

"Upon whom do you place the responsibility of giving you an adequate description of the place? "—"Upon the owner of the animal. I expect to be met on the road, or I expect some indication as to direction to have been left on the roadside."

For Mr. Pell it was contended that the whole matter was one of contract, and that contract was to attend to the mare that evening. There was no obligation on the part of Mr. Pell to meet Mr. Callaghan, who knew where he had to go. If Mr. Callaghan had failed to carry out the contract, how then could he claim payment for it? Also, he claimed for professional services, whereas he had rendered none. A claim for travelling expenses would have been a different matter.

For Mr. Callaghan, it was argued that it was no fault of his that he was unable to locate the premises to which he had been called on professional duties. His instructions still stood when he went there next morning. He had attempted to fulfil the contract and was therefore entitled to payment.

The Registrar, however, decided that there was no all-pervading principle at stake. The night journey was just not a performance of the contract, and Mr. Callaghan could not, therefore, claim for it. When he arrived home after his fruitless journey, he was in exactly the same position as when he left—there was an animal in distress. But he did not then feel the same urgency about it.

As for the morning journey, Mr. Callaghan felt he owed that to the farmer, and to himself to make sure nothing amiss had occurred through his inability to reach the farm previously. To the Registrar that did not look like a contract at all. He therefore gave judgment for Mr. Pell.

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THE LATE SIR ROWLAND BIFFEN

"Another of our pioneers has passed on," writes Blythe in *The Farmer and Stock-Breeder*, and continues: "I doubt whether farming—and the nation—will ever be able to assess how much it owes to Sir Rowland Biffen. It was his work which really laid the foundations of agricultural botany as a science and as a powerful factor in practice. The Plant Breeding Institute and the National Institute of Agricultural Botany are two direct results of his brilliance. Sir Rowland had also much to do with the development of the School of Agriculture at Cambridge. His practical successes—Little Joss and Yeoman wheats—were a great help when it came to raising funds for the work of building."

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CHILLINGHAM WILD CATTLE

At the annual meeting of the Chillingham Wild Cattle Association in Chillingham Castle, Lord Tankerville, who presided, said that the Forestry Commmission would be taking over an area on the top of the hill out on the moor in Chillingham Park, but that would not affect the herd at all. He reported that the income for the year was £363 with a surplus of £35; the total surplus was £357. The membership was 251, a slight increase. Scientific advice was being taken for the treatment and nutrition of the cattle. Professor R. W. Wheldon commented that their major problem was to maintain the herd where it was; it could not be moved.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

BOVINE MASTITIS CAUSED BY *DIPLOCOCCUS PNEUMONIAE* (PNEUMOCOCCUS)

Sir,—The interesting communication by Messrs. Wilson and Lancaster prompts me to record that in 1928, while on the staff of the Department of Bacteriology and Public Health, University of Manchester, I received a culture from a bacteriologist in the West of Scotland with the information that it had been isolated from an individual sample of cow's milk. He had noticed the characteristic autolysis and wished me to identify the organism. I found that it had all the characters of a pneumococcus, *i.e.*, bile solubility, capsulated and lethal to mice. Agglutination tests with types I, II and III sera were made but were negative and it was concluded that the organism belonged to some other type, at that time included under the comprehensive term Group IV. A further sample of milk was sent and a similar organism isolated.

I stressed the interest of this finding and urged that the other cows in the herd should be examined and that the throats of the milkers should be swabbed.

Unfortunately, owing to circumstances beyond our control, it was not possible to carry this investigation further.

Yours faithfully,

C. A. McGaughey,
Professor of Veterinary Science.

Faculty of Veterinary Science,
University of Ceylon,
Colombo, 3.
Ceylon,
July 19th, 1949.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
July 1st to 15th, 1949	6	—	34	—	—	—
Corresponding period in—						
1948	3	—	5	—	1	2
1947	1	3	47	—	9	—
1946	6	1	—	—	2	7
Jan. 1st to July 15th, 1949	106	11	319	—	28	5
Corresponding period in—						
1948	50	—	211	1	27	22
1947	48	101	589	1	34	16
1946	57	29	—	4	38	282

NOTE.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.

Tuberculosis Order of 1938

The number of bovine animals slaughtered under the Tuberculosis Order of 1938 during the period April 1st to June 30th, 1949, was 1,507.